


# Technical COMMUNICATION

*Journal of the Society for Technical Communication*

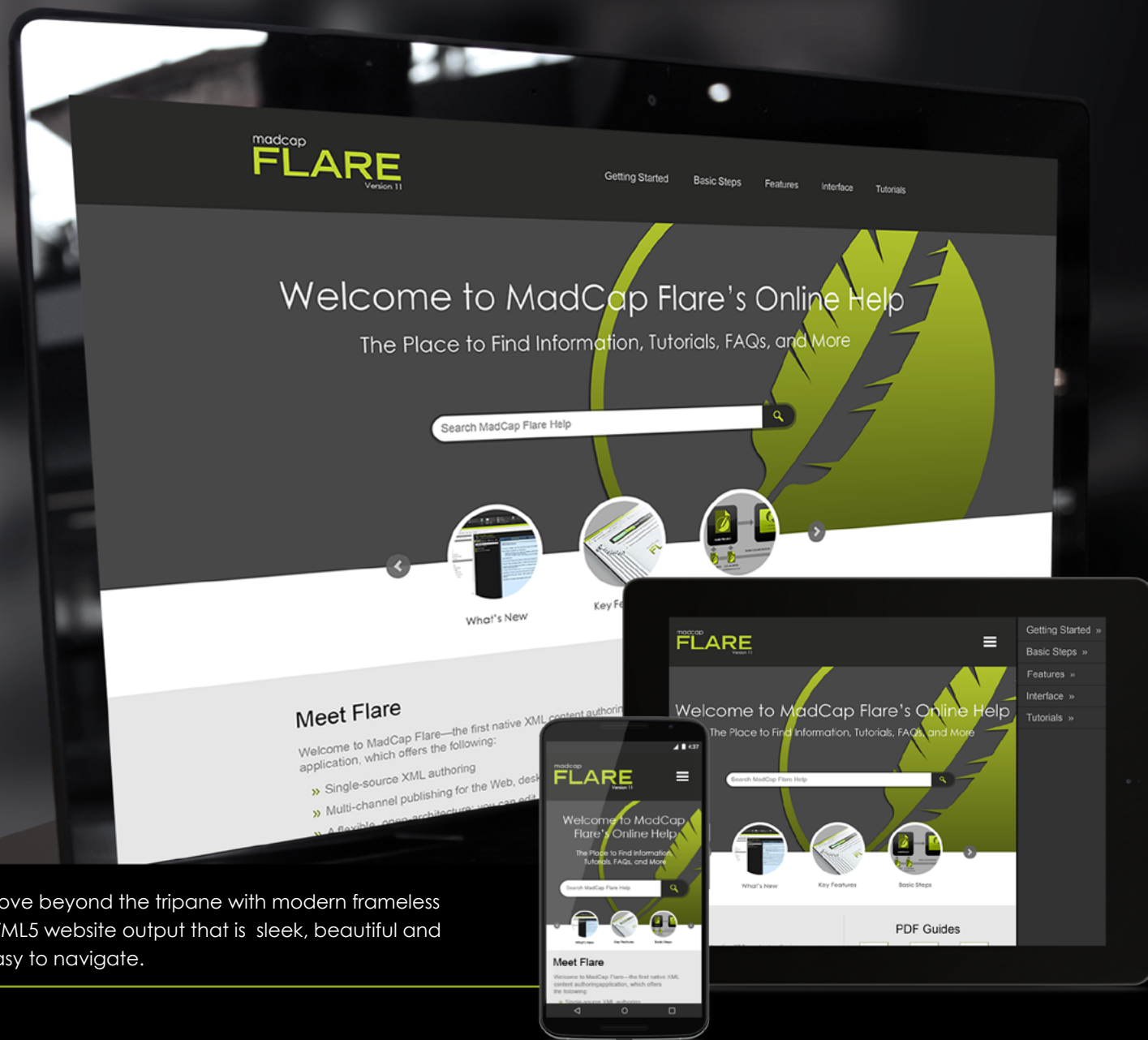
## TECHNICAL COMMUNICATION: HOW A FEW GREAT COMPANIES GET IT DONE

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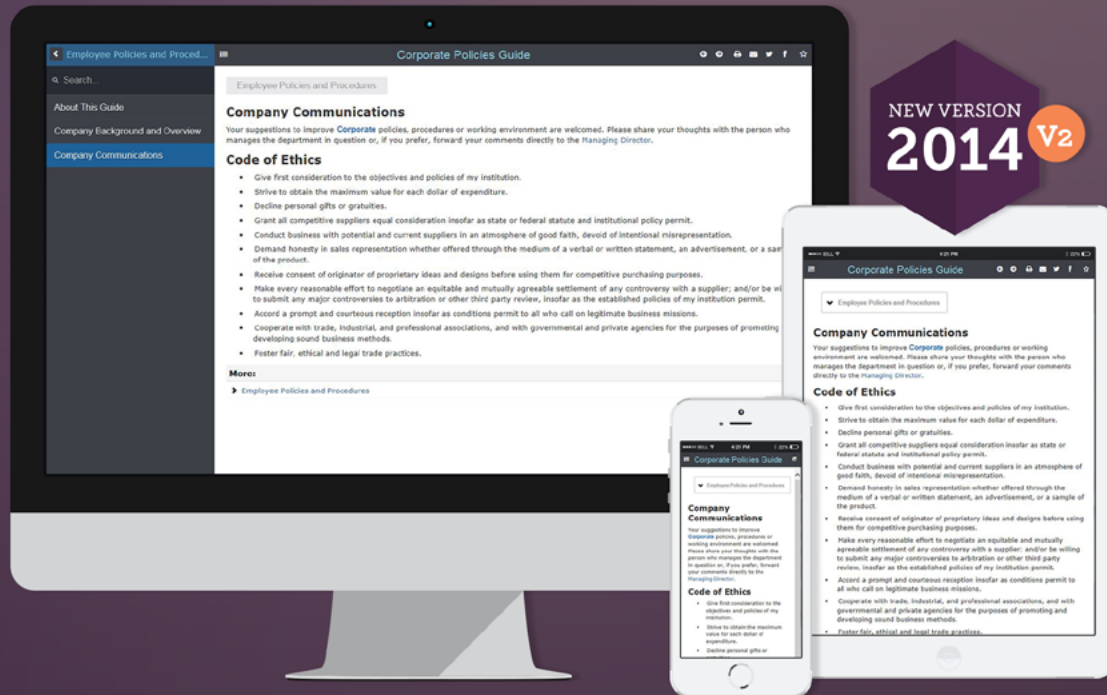
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The Society for Technical Communication is the largest association of technical communicators in the world. STC is currently classifying the Body of Knowledge for the field and communicating the value of technical communication. Its volunteer leadership continues to work with government bodies and standards organizations to increase awareness and accurate perception of technical communication. Membership is open to all with an interest in technical communication. Visit the STC Web site ([www.stc.org](http://www.stc.org)) for details on membership categories, fees, and benefits.

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# Technical COMMUNICATION

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# Technical COMMUNICATION

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*Journal of the Society for Technical Communication*

**SPECIAL ISSUE: TECHNICAL COMMUNICATION:  
HOW A FEW GREAT COMPANIES GET IT DONE**

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# INSTRUCTIONS FOR AUTHORS

## About the Journal

*Technical Communication* is a peer-reviewed, quarterly journal published by the Society for Technical Communication (STC). It is aimed at an audience of technical communication practitioners and academics. The journal's goal is to contribute to the body of knowledge of the field of technical communication from a multidisciplinary perspective, with special emphasis on the combination of academic rigor and practical relevance.

*Technical Communication* publishes articles in five categories:

- **Applied research** – reports of practically relevant (empirical or analytical) research
- **Applied theory** – original contributions to technical communication theory
- **Case history** – reports on solutions to technical communication problems
- **Tutorial** – instructions on processes or procedures that respond to new developments, insights, laws, standards, requirements, or technologies
- **Bibliography** – reviews of relevant research or bibliographic essays

The purpose of *Technical Communication* is to inform, not impress. Write in a clear, informal style, avoiding jargon and acronyms. Use the first person and active voice. Avoid language that might be considered sexist, and write with the journal's international audience in mind.

Our authority on spelling and usage is *The American Heritage Dictionary*, 4th edition; on punctuation, format, and citation style, the *Publication Manual of the American Psychological Association*, 6th edition.

## Manuscript Preparation and Submission

Submitting a manuscript to *Technical Communication* for review and possible publication implies that its submission has been approved by all authors, researchers, and/or organizations involved, that the manuscript (or a substantial portion) has

not been published before, and that the manuscript is not under review elsewhere.

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- Page 3: Up to five keywords and a practitioner's take-away (maximum 100 words) – A bulleted list summarizing the practical implications of the article
- Page 4: Start of the manuscript
- References
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## Review Process

The editor-in-chief will read your manuscript and check its potential suitability for the journal. In the case of a positive outcome, the manuscript will be sent to three independent referees for a double-masked review. On the basis of the referees' recommendations, the editor will send you a decision about the manuscript. There are five possibilities: (1) reject, (2) revise and resubmit, (3) accept with major revisions, (4) accept with minor revisions, and (5) accept as is.

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Menno D.T. de Jong, Editor



# Changing of the Guards – Looking Back on Two Terms of Editorship

Time flies when you are having fun. I can vividly remember the excitement I felt when I took over the editor-in-chief position from George Hayhoe in 2008. Now, at the end of my two terms as editor of *Technical Communication*, I feel a strange combination of melancholy and relief, and several other emotions that I cannot even find the words for, neither in English nor in Dutch. This is the last journal issue published under my responsibility and my last editorial. It has been a great honor to serve the academic and professional discipline in this position, and to have been at the helm of STC's flagship journal, even though my period was just a flash, compared to the long terms of several of my predecessors, most notably George Hayhoe, Frank R. Smith, and A. Stanley Higgins.

## Looking Back

Having reached the end of my time as editor of *Technical Communication*, I would like to look back on the past six and a half years. During this period, 94 articles were published, about topics as diverse as our discipline can be. In addition, the journal underwent considerable changes. The most drastic change involved the development from a dominantly paper journal (with online presence) into a dominantly online journal

(with an optional paper version). Other changes involved its new visual design, and the introduction of structured abstracts and practitioner's takeaways.

As editor, I have tried to further strengthen the contribution of empirical research in the journal and to connect academic rigor with practical relevance. I cannot say that both aims were always easy to realize, but they have been my main mission during all those years. Of course, there are limitations to the influence of an editor: much depends on the actual studies and projects academics and practitioners are working on in their daily work.

The content of the seven journal volumes varied enormously. Prominent themes were computer-mediated communication, technical communication education, the discipline's body of knowledge (TCBOK), usability, intercultural communication, professional practice, legal issues, and user instructions. Some specific themes were strongly represented in the beginning years—most notably PowerPoint and other presentation slides—whereas some new themes emerged more recently—in particular, user-generated content, user forums, and video instructions.

To my pleasure, the journal's ranking in the Web of Science has consolidated throughout

the years. Inclusion in the Web of Science can be seen as an external indication of quality and influence. The ranking gives more detailed information about influence. An impact factor is calculated by dividing the number of references to journal articles by the number of articles published per year. Between 2009 and 2015, *Technical Communication* had an impact factor varying between 0.740 and 1.064, and a rank between 20 and 36 among all communication journals. Of the three journals devoted to technical communication in the database, *Technical Communication* has been consistently the highest ranked journal (the other two journals being *IEEE Transactions on Professional Communication* and the *Journal of Business and Technical Communication*).

More than anything, however, I am proud of the role *Technical Communication* has played and will continue to play within the professional and academic discipline, connecting practitioners and academics, and keeping the discipline with two feet on the ground.

## Acknowledgments

To conclude, there are many people I want to thank for their



contributions to the journal, and for making my work easier and sometimes harder. Listing them clearly shows how many people are involved in keeping a peer-reviewed journal going.

Let me begin with my predecessor, George Hayhoe, for the perfect state the journal was in when I took over and for the clear and consistent vision, which I only needed to adopt. And my successor, Sam Dragga, for taking over and further developing the journal in the coming years.

The section editors of the journal have made an invaluable contribution to the journal. Both the Book Reviews section and the Recent & Relevant section have

always been greatly appreciated by the readers. I want to thank Avon Murphy, Sherry Southard, Jackie Damrau, and Lyn Gattis for their high-quality contributions over the years.

The Editorial Advisory Board has been of great help as a sounding board for the more strategic aspects of keeping the journal going, especially (but not only) in the time of the changes to the journal. Thanks so much to all the present and past Advisory Board members.

Truly indispensable were the authors, guest editors, Recent & Relevant contributors, and book reviewers who have contributed to the journal. Thanks for sharing your work with us, and choosing

*Technical Communication* as the outlet for your work.

The same applies to the reviewers. Their work is unseen but essential for the quality of the journal. *Technical Communication* is traditionally blessed with reviewers who not only can be critical when necessary but also try to be constructive in helping authors to optimize their work. Thanks for your great contribution.

Other major contributions that may be invisible to the readers were made by the STC office and the STC board, who trusted me with this important task, supported me, and showed interest in the journal. Specifically, let me mention Liz Pohland, STC Director of

### Frank R. Smith Outstanding Article Award 2014

Each year, an independent jury of three researchers and practitioners selects one outstanding article and up to three distinguished articles that appeared in *Technical Communication* during the previous calendar year. This year's jury members were Editorial Advisory Board members Kirk St. Amant (chair) and Jackie Damrau, and winner of last year's Outstanding Article Award, Lisa Meloncon. The award honors the memory of Frank R. Smith, during whose 18 years as editor this journal became established as the flagship publication of STC and of the profession. This year, the jury selected one outstanding article and two distinguished articles.

#### 2014 Outstanding article in Technical Communication

Leo R. Lentz, Henk L.W. Pander Maat, and Ted J.M. Sanders. Towards Evidence-Based Writing Decisions: The Knowledge Base Comprehensible Text (February 2014)

"For research that contributes to academic and industry practices in ways that can foster meaningful discussions across the field."

#### 2014 Distinguished articles in Technical Communication

Saul Carliner, Adnan Qayyum, and Juan Carlos Sanchez-Lozano. What Measures of Productivity and Effectiveness Do Technical Communication Managers Track and Report? (May 2014)

"For research that advances our understanding of how technical communicators contribute value to organizations."

Hans van der Meij. Developing and Testing a Video Tutorial for Software Training (May 2014)

"For innovative research in technical training and in technical communication education."

Communications, who acted as the liaison between the STC and journal. And let me also thank Alex Tzoumas and Nancy Shoemaker of Content Worx, responsible for the production of the journal, and Shonell Bacon, who was in charge of the copy-editing.

A special word of thanks for the various Frank R. Smith judging teams, who selected the outstanding and distinguished articles published in the journal every year. Being a judging team member takes a lot of time, but I have greatly appreciated the efforts spent and the always well-considered and sometimes illuminating selections of award

winners. And let me not forget to mention the award winners, who obviously have made major contributions to our field.

The last acknowledgment is for the readers. I am happy you were there, and I hope the journal brought, and will continue to bring, the inspiring food for thought that we all need in our professional and academic development.

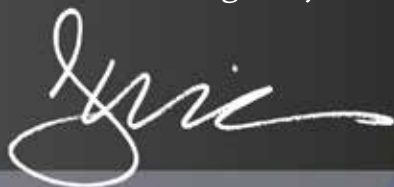
### In This Issue

This is a special issue, initiated and guest edited by Miles Kimball, in close collaboration with Craig Baehr and James Dubinsky. They conducted a unique and

comprehensive study among communication managers of companies represented in the STC Advisory Council, investigating views on the discipline and practices. More about that can be read in Miles Kimball's guest editorial, which introduces the special issue and describes the general methodology used. I would like to thank Miles Kimball, Craig Baehr, and James Dubinsky for their hard work compiling this special issue and for the thought-provoking articles that resulted from their hard work.

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"After I got laid off last year, I decided to increase my skill set. I had already been studying DITA and content management strategy since the 2013 Summit, but now I concentrated on it. I watched every free, on-demand, archived seminar that STC offered on the topics, which gave me a solid foundation in which I could build my knowledge. Because of this I knew the right questions to ask in interviews and landed a great job."




MY NAME IS JOEL MEIER AND

**I'M AN STC MEMBER**



# Special Issue Introduction Technical Communication: How A Few Great Companies Get It Done

Miles A. Kimball

## Abstract

**Purpose:** This article introduces a special issue assessing the attitudes, ideas, and practices of technical communication managers representing several prominent companies on the Society for Technical Communication's Advisory Council in 2013–2014.

**Method:** The research team used a modified Delphi method to assess the opinions of this group of experts over several rounds. This article describes and justifies the methodological approach of the entire study.

**Results:** The results are described in three individual articles following this introduction in the special issue, taking up the topics respectively of *Identities and Relationships*, *Products and Processes*, and *Training and Education*.

**Conclusion:** Technical communication should pay more attention to the perspective of publications managers.

**Keywords:** Delphi method, technical communication, managers

## Practitioner's Takeaway

- Technical communication professionals should pay more attention to the insights of publications managers.
- The Delphi method can be a helpful way to assess consensus among groups in product development and assessment, as well as in academic research.
- The method can be modified to value disagreement as well as consensus.

## Consulting the Oracles

Most technical communicators would likely agree that although the field constantly changes, it is today in a particularly dramatic state of flux. We still do our work “accommodat[ing] technology to the user,” as David Dobrin (1983) put it, but the techniques we use and the contexts in which we do so have changed significantly. We have gone through a variety of progressive revolutions in thinking and practice in the past three decades. User-centered design, once a novelty, is now an accepted value in the field. The visual and physical design of technical information is now something we all recognize as important. We have drawn ethical awareness to the forefront of professional identity. We have made considerable progress in solidifying our professional status (we are now recognized by our own Standard Occupational Code) and growing our collective professional body of knowledge (STC-BOK) (Hart & Baehr, 2013). And we have enthusiastically explored and grappled with new communication technologies, from desktop publishing to distributed content and mobile delivery. Now a technical communicator’s work is not commonly centered on composing and managing the thick tomes we called “manuals” (though they were anything but handy). Even the electronic version of those tomes – online help files – merely formed a transitional state on the way to what technical communicators increasingly work on today: fully networked systems of live information, pulled from databases on the fly to present users with the information and guidance they need at the moment they need it. Working with distributed technical information in this networked environment differs significantly from working alone to develop a discrete, coherent technical document.

The field has changed so much that even the broader term “technical communicator” has had to stretch to fit the growing number of specialties that have developed in the past decade, including user experience designer, interface designer, usability expert, content developer, information designer, communication engineer, and so forth. What we do, what we call ourselves, how we form and encourage the development of new members of our profession – all have changed so quickly that we must constantly reassess where we stand, what we do, and who we are as technical communicators.

This special issue engages in this kind of reassessment. In this regard, it extends the excellent work done by many researchers, practitioners, and commentators examining the direction of the profession, including Johnson-Eilola (2005), whose *Datacloud* opened our awareness to the redefinition of technical communication as “symbolic-analytic” work; Kynell and Savage (2003, 2004), whose two-volume edited collection, *Power and Legitimacy in Technical Communication* gathered many perspectives on these issues; and more recently, Coppola’s 2012 and 2013 special issues in this journal on the Professionalization of Technical Communication.

## Technical Communication Managers

This special issue adds to these and similar academic studies by examining what technical communication is today, how it works, and who does it, from the perspective of the people who manage technical communication practitioners in successful, highly prominent companies. Understanding the perceptions and attitudes of these managers is particularly useful for professional technical communication practitioners and researchers because these managers serve as the connecting point between the profession and the companies that professionals work for. In this liminal position, these managers must simultaneously direct the work of technical communicators, while at the same time implementing the directions of their own managers in moving toward corporate goals. Accordingly, they have a unique perspective about the professional identity, practices, and values of technical communication as it is related to business purposes.

As Carliner (2004, p. 45) has commented, “systematic studies of management practice in technical communication are scarce.” Similarly, Amidon and Blythe (2008, p. 6) have observed that “the management of communication groups is one of the least addressed research topics in professional and technical communication.” Of course, as Amidon and Blythe point out (2008, pp. 6–7), there is plenty of practical *advice* available about the management of technical communication (see for example among many others Allen & Deming, 1994; Dicks, 2003; Hackos, 1994; Lips, 2007). This advice is invaluable (and often based on research), but it does not aim to provide research about technical communication management.

## Special Issue Introduction

Carliner's (2004) survey-driven study of the quality metrics used by technical communication managers (followed up in Carliner, Qayyum, & Sanchez-Lozano, 2014) and Amidon and Blythe's (2008) thoughtful analysis of interviews of 11 technical publications managers have helped close this gap. However, even this small body of research has focused primarily on the *practices* of technical communication managers. We also wanted to find out what these people *think* about technical communicators and technical communication today. Our focus was less on the experiences and challenges of publications managers themselves, than on their perspectives about technical communication and the practitioners they manage. In this regard our study is somewhat more like Whiteside's (2004) study of the attitudes of publications managers toward the training and education of technical communicators. But we wanted to explore broad questions not only about education, but about identities, relationships, products, and processes in technical communication today.

Despite the good work done thus far, there is much yet to be gained from looking at technical communication from the perspective of publication managers. We have not at all plumbed the depths of the understanding that could result from working with these people and examining their perspective on the relationship between technical communicators and the companies they work for. But we hope this study makes a contribution in that direction.

### A Unique Special Issue

As special issues go, this one is perhaps more special than most – or at least it's a bit different. Typically special issue editors send out a call for papers on a particular theme, receive contributions, see them through peer review, and publish them as a collection of articles on that theme.

This special issue, however, holds the results of a single large study. As such, it might provide a model for journals to support research projects that are too large for a single article, yet too focused or too topical to make a book.

This shift from the norm is justified by a unique opportunity: the founding of the Society of Technical Communication's Advisory Council in 2013. The STC Advisory Council was formed of technical

communication managers from industry, STC personnel and officers, and academics (including me and fellow researcher Jim Dubinsky) to function as a sounding board for STC's leadership. The inaugural Advisory Council included representatives from an impressive list of companies, including Adobe, Boston Scientific, CA Technologies, Google, IBM, Madcap, and Oracle. In other words, in one room, STC had gathered some of the most powerful voices in determining the shape of technical communication as it's done at some of the most successful, forward-thinking companies in the tech sector.

It seemed natural – indeed, imperative – that we should ask these people some questions about how their companies do and think about technical communication, so as to understand some of the current practices and attitudes and spread that understanding to others in the field. With the aid of STC Executive Director Chris Lyons and Communications Director Liz Pohland, we assembled a team of experienced researchers to do just that.

In particular, the resulting study focused on questions orbiting four themes:

- *Identities and Relationships.* How do these companies define “technical communicator” in terms of job titles, personnel structures, and professional activities and responsibilities? Where and how do technical communicators work in the corporate structure?
- *Products and Processes.* How do these companies engage in technical communication? What do they produce, and how do they produce it?
- *Education and Training.* What kinds of education and training do these companies value in their technical communicators, both in terms of qualifications for hiring and in terms of continuing professional development?
- *On the Horizon.* Where and how do these companies anticipate the field of technical communication will develop in the next few years? In what directions are these documentation managers leading their companies toward the technical communication of the future?

These topics are deeply interconnected: *who we are* is related to *what we do* and *how we learn to do*, and all of these things are changing fast. But dividing our



questions into these four primary themes gave shape and direction to our inquiry.

It also helped us organize this special issue. We begin with this introduction, which provides the methodological explanation and justification for the entire study. From here, we branch out into three chapters, prepared by my collaborators Craig Baehr (Texas Tech University), Jim Dubinsky (Virginia Tech University), and me. Each chapter focuses respectively on one of the first three themes listed above: Baehr on Identities and Relationships, Dubinsky on Products and Processes, and Kimball on Education and Training. The responses about the future of technical communication informed all three of these primary areas.

## Methodology

We approached the study with big questions, but a small participant group already defined by the membership of the STC Advisory Council. Accordingly, we settled on a flexible methodology that would allow the participants to engage in a structured, iterative, generative conversation. This conversation involved only a few participants, but it generated a lot of data about what technical publications managers think and feel about technical communication today.

Given that the rationale behind this project was to consult a group of experts, we applied a method developed just for that purpose. The Delphi method was pioneered in the 1950s by the RAND Corporation (Okoli & Pawlowski, 2004, p. 16) as a way to form a consensus on a central issue. In this way, the Delphi method attempts to make groupthink, typically understood as a danger to be avoided in focus groups, into an asset. The Delphi method's central features differ from other methodologies in two ways. First, the Delphi method employs several rounds of surveys, each building on the results of the last. And second, the results of each round are shared with the participants before the subsequent round. The participants then can read and respond to each other's ideas, helping to shape a consensus view (Landeta, 2006; Geist, 2010; Okoli & Pawlowski, 2004).

The Delphi method's reiteration can be both a strength and weakness. It allows a group of experts to think carefully through a problem, topic, or issue. Since its aim is consensus, the method allows researchers to reiterate the study as many times as necessary to reach

this goal. However, this focus on consensus as the primary goal can extend the time scope of the study significantly and raises the likelihood of fatigue and attrition among the participants. The Delphi method's focus on consensus also by necessity undervalues dissensus and disagreement, which can be valuable to recognize and generate new ideas and understanding.

In response to these limitations, Kendall, Kendall, Smithson, and Angell (1992) proposed the SEER method (Scenario Exploration, Elaboration, and Review), which they described as the "converse of the Delphi technique." It starts with a group of experts, just like a Delphi study. But rather than focusing on reaching consensus through anonymous rounds of surveying, SEER explores differences among a small group of experts through iterative, structured, face-to-face interaction (Kendall, Kendall, Smithson, & Angell, 1992, p. 125).

In this study, we struck a middle path that takes advantage of both approaches, in these ways:

- *Valuing difference.* Consensus is great, but disagreements are interesting, too. We wanted to value and explore both, so like SEER, our goal was not necessarily to reach consensus, except insofar it arose from the participants' responses and interactions. Differences of opinion among the participants also provided fruitful opportunities for analysis.
- *Limiting scope.* Because the goal was not consensus, we designed the study as a discrete series of rounds of inquiry with a definitive beginning and ending.
- *Building knowledge from the ground up.* While the Delphi method asks the same questions repeatedly, we allowed the responses from each round to shape the questions for subsequent rounds. This grounded approach helped build a deeper sense of the dynamics surrounding the issues the study addresses. In this way, our methodology could perhaps be described as employing *participatory* grounded theory, as described by Teram *et al.* (2005).
- *Valuing community.* Because the participants were members of the STC Advisory Council and already knew one another, anonymity was impossible to sustain. So we decided to value community and follow Kendall *et al.*'s (1992) SEER approach, including not only anonymous surveys, but

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face-to-face and virtual focus groups. However, to avoid researcher bias, all results were anonymized before the researchers began to analyze the results.

Specifically, the study took place through four iterations, or rounds.

*Round 1* employed a survey instrument mixing qualitative (discursive) and quantitative questions to gain a baseline of response. (See appendix A.) We then anonymized the responses and provided them to participants in preparation for Round 2. To foster conversation, some of the quantitative results of Round 1 were visualized for the participants in the form of charts.

*Round 2* used a second survey instrument, based on the responses from Round 1. (See appendix B.) Just as with the Round 1 results, the Round 2 results were anonymized and provided to participants for Round 3.

*Round 3* was conducted as a focus group at the 2014 STC Summit, centering on the issues raised in Round 1 and Round 2. (Because only three of the participants were able to attend the Summit, these results were not shared more broadly with the participant group.)

*Round 4* followed up with a final Web conference focus group, using the audio and chat functions of the common Web conferencing tool GoToMeeting. To prepare for this round, we again provided participants with the results from Round 1 and Round 2, and we asked participants to provide before the Web conference a written response to what we felt was a central unresolved question for each of the four research themes. (See appendix C.) In the Web conference, we took up each question in turn, giving each participant two minutes to respond, then opening each question for general discussion.

The variety of methods we used to gather data differed from traditional Delphi method approach, which relies exclusively on reiterated surveys. However, we felt that shifting the methodology for Round 3 and Round 4 to synchronous (whether face-to-face or online) conversation would lead to greater engagement among the participants and avoid the survey fatigue for which other researchers have criticized the Delphi method.

One of the greatest advantages of this method is its iterativity. How often have researchers prepared a single survey and sent it out, only to realize on receiving

the results that they forgot an obvious question or worded a question in a way that confused participants or fostered unusable responses? In a typical research project, such an error can potentially invalidate the entire study. Using the Delphi method, however, we were able to repair any deficiencies in our questioning from round to round. Or put more positively, we could use each subsequent round to tunnel down to greater detail on interesting points, to ask for clarification, or to foster further conversation. For example, in Round 1 we asked participants to rank the relative importance of a variety of skills for technical communicators. One of the skills we included was “research skills,” by which we meant skills in conducting field, usability, or product research. When we received the results, we were surprised to find that participants marked “research skills” as having a very low importance in a technical communicator’s work. In a typical study, this result might remain a mystery – but the Delphi method gave us a second chance at understanding the importance (or lack thereof) of research skills. So in Round 2, we asked participants to speculate on why research skills came out so low in the rankings. We also followed up on this question in Round 3, eventually finding out that when participants saw the term “research skills” in a survey from a group of college professors, they read it as *library* research skills. This confusion led to a discussion of the wide variety of research skills technical communicators need.

The Delphi method, whether used straight or modified as in this study, can form an effective research method not only in answering academic research questions, but in answering questions about product development and usability in corporate settings. After all, the Delphi method was pioneered in the defense industry by the RAND Corporation. It could direct the management of extended, reiterative focus groups or participatory design projects, for example.

### Participants

Overall, we had eight participants, representatives from seven companies: Adobe, Boston Scientific, CA Technologies, Google, IBM, Madcap, and Oracle. (To maintain privacy, we have anonymized responses and links from employees to specific companies.) However, these were busy people, and even in the truncated version of the Delphi method we used, this was a long study, extending from March to August

2014. Accordingly, their participation was not entirely consistent (see Table 1). Two members of the Advisory Council could not themselves participate fully; one participant nominated a general company evangelist in his place, assuring us that he would be consulting with this substitute. In any case, the substitute participated only in Round 2. Somewhat more involved was a participant who, rather than participating herself, sent along her assistant manager – a publications manager with considerable experience (see Table 1).

**Table 1. Participation**

	Company						
	1	2	3	4	5	6	7
Participant	A	B	C	D / D2	E	F	G
Round 1		✓	✓		✓	✓	✓
Round 2	✓	✓		✓	✓	✓	
Round 3			✓	✓		✓	
Round 4		✓	✓	✓		✓	✓

Five of the seven participants can easily be described as technical publications managers in traditional sense of the term: someone who manages the work of technical communicators. Despite the trends toward flatter organizational structure and distributed work, all of these participants manage a separate publications team. Two of these five have had extensive experience as professional technical writers, while the remaining three are managers primarily, and not especially experienced in technical communication practice. Of the remaining two participants, one is the CEO of a small software company, and one is the company evangelist described above.

### Data Analysis

The mass of data gathered from multiple methodologies presented a daunting prospect for analysis. For any particular survey question, we were limited by our small N; by itself, any particular question-response set could not be statistically trustworthy. But the strength of the Delphi method lies in asking similar questions repeatedly and sequentially, to dig down into people's perceptions. So while we may have had only seven respondents, on any particular issue we have many times more than seven comparable responses.

To analyze this mass of data, we began with simple descriptive statistics to analyze surveys for Round 1 and Round 2. Although these statistics have far too low an N to be reliable, they gave us good cues about where to ask further or more specific questions in subsequent rounds. For the transcripts of the focus groups in Round 3 and Round 4, we might even a few years ago have used a technique such as that employed by Amidon and Blythe (2008): manual content analysis, beginning with the development of a coding scheme and then a manual application of all of the codes to matching utterances. Such a methodology has many good things going for it – but efficiency and ease-of-use are not among them.

So for Rounds 3 and 4, we recorded and transcribed the conversations, then conducted a statistical analysis on the transcripts through text mining techniques, specifically semantic content analysis, using a well-regarded software package, Leximancer (<http://leximancer.com>). Leximancer applies a variety of text mining approaches aimed at analyzing the natural language in conversations and qualitative (text-based) survey responses. Leximancer offers a convenient, rigorous, and well-justified suite of tools for text analysis (Smith & Humphreys, 2006). It is specifically designed for analyzing corpora of natural language texts. Leximancer starts with a transcript of a conversation, previously marked for speakers, and builds a thesaurus of terms in the conversation. It then uses cluster analysis techniques – specifically, relative co-occurrence frequency (the number of times one word appears near another, and the distance between them) – to group related terms into concepts. It then groups the concepts into general themes. Leximancer also allows researchers to include or omit specific “seed terms” (Leximancer, 2010) to focus the analysis on particular ideas or to filter out misleading data. For example, we specified that the utterances of the researchers in the focus groups should be excluded from the analysis, as well as functional terms such as “time” and “question” (as in, “It’s time to move on to the next question”).

Just as with manual content analysis, which begins with subjectively determined categories by which the researchers objectively label utterances, the cluster analysis performed by Leximancer inevitably involves a good amount of researcher subjectivity in “reading” the results. Leximancer’s primary approach is K-means cluster analysis. This technique requires the researcher to specify in advance how many clusters (K) into which

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the algorithm will sort multivariate data ( $K = 2, 3 \dots n$ ). In other words, researchers can choose to sort concepts into fewer groups with looser relationships, or more groups with tighter relationships. At the extreme ends of the spectrum, one could put every item into one group, or sort every individual item into its own group, although neither approach would give much insight into the relationship between the items. So cluster analysis typically requires that the researchers look at the data at several different levels of  $K$  until patterns or interesting relationships begin to emerge. This emergence is inevitably influenced by the researchers' attitudes, opinions, and experience. In other words, cluster analysis is less a measurement technique than an exploratory data analysis technique, as described by John Tukey (1977).

Given that we were exploring attitudes of the group, the exploratory nature of this analytical technique made sense. The subjectivity involved in this technique does not mean that the results are invalid – they're simply contingent. However, this contingency is moderated by the reiterative nature of the study, by the intense conversations between the participants, and by the close collaboration of the researchers. In other words, each participant (including the researchers) had multiple voices and viewpoints to provide checks and balances upon our reading of the data.

### Visualizing the Data

Our methodological approach naturally directed our approach to analysis and ultimately to structuring the three articles presented in this special issue. In other words, each of these articles traces the development of ideas through the successive rounds of the study, focusing on descriptive statistical analysis for Round 1 and Round 2, then moving over to semantic content analysis for Round 3 and Round 4.

In each round, we used data visualizations to guide not only our analysis of that round, but our research design for subsequent rounds. For Round 1 and Round 2, these visualizations included sparklines and radar plots. Just like the raw results, while these visualizations are based on a small  $N$ , they gave us good indications about where we should ask more questions in the next round. Like all of the other data in the study, we shared these visualizations with the participants as we went along.

One of the most useful visualization tools was provided by Leximancer itself, which outputs its results in a network diagram (see for example Figure 1). These diagrams gave us the opportunity to see potential themes, consensus, and dissensus among the participants in their responses to various questions and groups of questions. We used these diagrams primarily as analytical tools to understand the final two rounds after the study ended, so we did not share them with participants.

Because these visualizations may be unfamiliar to readers, I will describe them somewhat more fully here. Leximancer's standard diagram uses "bubbles" to mark each theme, and labels within the bubbles to mark each concept within the theme. The themes are heat mapped from red through blue for cohesion or connectedness, although unfortunately color cannot be represented in these pages. The most connected theme is always rated 100%, and other themes are compared to it in terms of a "connectivity score," represented as a percentage of the connectivity of the most connected theme. In the Leximancer interface, users can click on any theme or concept and see the links and their relative strength between the item clicked on and the rest of the cluster. Leximancer also allows researchers to tunnel back from themes to concepts to the individual utterances of participants in the transcript.

In reading these visualizations, please note that the circles do not form Venn diagrams – any overlap is simply an artifact of the three-dimensional nature of the graphics, which can be rotated for viewing from various angles. In addition, the size of the circle for each theme carries no significance – the software simply sizes the theme circles big enough to make room for the concepts they contain. The more important visual indication is the *distance between concepts*. Concepts that are farther away from each other are less tightly connected than those that are close to each other. Concepts with direct linkages are more tightly connected than those with indirect linkages.

As with cluster analysis itself, these diagrams essentially show the relative connectedness of concepts and themes to each other. These diagrams therefore allowed us to find interesting connections and disconnections among concepts and themes in the transcript and then trace those patterns down to individual utterances of the participants for further analysis.

### Limitations

By employing a variety of methods, we were able to foster a dynamic, but structured conversation that valued both consensus and dissensus – our primary goal in designing the study. However, such a study is bound to be messy, in the manner described by Parkhe (1993). The dynamism we valued necessarily means that the results are not entirely reliable or extendable to other companies or other contexts.

Also, the data represented a small group of voices – and even that group naturally fluctuated from round to round. With such a small number of companies represented, our study was inevitably exploratory. But at the same time, the small group of people generated a mass of data for analysis, as they contributed to multiple rounds of survey and discussion.

### Three Articles

The rest of the special issue is comprised of three articles addressing three significant topics for technical communication.

First, Craig Baehr describes the responses of technical communication managers to questions regarding professional technical communication in terms of its *Identities & Relationships*. Baehr found that technical communication managers valued adaptable technical communicators who could practice through multiple skills and specializations. He notes that while job titles vary from company to company, experienced technical communicators often build on their technical communication skills to advance into management roles throughout the product development process.

The second article of the special issue holds James Dubinsky's analysis of technical

communication managers' responses to questions about the meat and potatoes of technical communication: *Products & Processes*. Dubinsky observed in particular the renewed focus on content expressed by the participants, as well as the rapidly shifting technologies and techniques technical communicators must constantly work to master.

In the final article, I report the findings on technical communication managers' attitudes toward *Education & Training*. I found that the managers who participated in the study valued relatively traditional educational credentials and skills, while at the same time holding that basic writing skills are no longer sufficient for success in the profession. Practitioners also need strong iterative project management skills, business skills, and interpersonal skills. Participants felt that technical skills and domain knowledge were best gained in the context of work, rather than in school.

### Acknowledgments

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Lisa Meloncon (University of Cincinnati) was an original member of the research team and contributed significantly to the research design and data collection. We appreciate her contributions.

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### Appendix A: Round 1 Survey

#### Identities and Relationships

Q1: What do you call your company's technical communicators – what are their job titles? Please mark all that apply.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Communications Manager | <input type="checkbox"/> Information Services Engineer | <input type="checkbox"/> Technical Documentation Specialist |
| <input type="checkbox"/> Content Developer      | <input type="checkbox"/> Publications Manager          | <input type="checkbox"/> Technical Editor                   |
| <input type="checkbox"/> Documentation Manager  | <input type="checkbox"/> Publications Specialist       | <input type="checkbox"/> Technical Writer                   |
| <input type="checkbox"/> Documentation Writer   | <input type="checkbox"/> Software Engineer             | <input type="checkbox"/> Other                              |
| <input type="checkbox"/> Information Designer   | <input type="checkbox"/> Technical Author              |   |
| <input type="checkbox"/> Information Developer  | <input type="checkbox"/> Technical Communicator        |   |

Q2: For whom do your technical communicators work? Who supervises them? Who evaluates their performance?

Q3: Describe the organizational context in which your technical communicators work. Do they work in a separate publications group? As part of a multi-function team? With whom do they work every day? With whom do they interact less directly?

Q4: What's the relationship in your company between technical communication and similar fields that deal with the design, development, and distribution of technical information for users?

Q5: Describe the typical pattern for advancement or promotion for technical writers in your company (if there is one). Do they generally stay in the field of technical communication, or branch out into other roles? If the latter, what other roles? How long are they likely to stay at a particular level along this path?

Q6: How much autonomy and authority do your technical communicators experience? In other words, in what areas or aspects of your company's activities are technical communicators considered the experts?

Q7: In the past five years, how has the role of technical communicators in your organization changed?

Q8: In the past five years, how has the number of technical communicators changed in your organization? In the comment area, please tell us why you think this change occurred.

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Increased more than 50% | <input type="checkbox"/> Stayed the same     | <input type="checkbox"/> Decreased more than 50% |
| <input type="checkbox"/> Increased up to 30%     | <input type="checkbox"/> Decreased up to 10% |  |
| <input type="checkbox"/> Increased up to 10%     | <input type="checkbox"/> Decreased up to 30% |  |

Q9: In your view, where does technical communication typically happen in product development cycles? Where should it happen?

## Products and Processes

Q10: What are the primary products of technical communication in your organization – specifically, what kinds of documentation or information products do technical communicators produce?

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Contracts                | <input type="checkbox"/> Online and embedded help | <input type="checkbox"/> Requirements specifications |
| <input type="checkbox"/> Customer service scripts | <input type="checkbox"/> Other                    | <input type="checkbox"/> Simulations                 |
| <input type="checkbox"/> Demonstrations           | <input type="checkbox"/> Policy documents         | <input type="checkbox"/> Training course materials   |
| <input type="checkbox"/> Design documents         | <input type="checkbox"/> Process flows            | <input type="checkbox"/> User manuals                |
| <input type="checkbox"/> Documentation plan       | <input type="checkbox"/> Product catalogs         | <input type="checkbox"/> Warning labels              |
| <input type="checkbox"/> FAQs                     | <input type="checkbox"/> Product packaging        | <input type="checkbox"/> Web-based training          |
| <input type="checkbox"/> How-to videos            | <input type="checkbox"/> Project documents        | <input type="checkbox"/> Websites                    |
| <input type="checkbox"/> Instructions             | <input type="checkbox"/> Proposals                | <input type="checkbox"/> White papers                |
| <input type="checkbox"/> Knowledge base articles  | <input type="checkbox"/> Release notes            |  |

Q11: What technical information products are most important for your company's mission? What ones are less so? Please mark as follows:

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Contracts                | <input type="checkbox"/> Online and embedded help    | <input type="checkbox"/> Simulations               |
| <input type="checkbox"/> Customer service scripts | <input type="checkbox"/> Policy documents            | <input type="checkbox"/> Training course materials |
| <input type="checkbox"/> Demonstrations           | <input type="checkbox"/> Process flows               | <input type="checkbox"/> User manuals              |
| <input type="checkbox"/> Design documents         | <input type="checkbox"/> Product catalogs            | <input type="checkbox"/> Warning labels            |
| <input type="checkbox"/> Documentation plan       | <input type="checkbox"/> Product packaging           | <input type="checkbox"/> Web-based training        |
| <input type="checkbox"/> FAQs                     | <input type="checkbox"/> Project documents           | <input type="checkbox"/> Websites                  |
| <input type="checkbox"/> How-to videos            | <input type="checkbox"/> Proposals                   | <input type="checkbox"/> White papers              |
| <input type="checkbox"/> Instructions             | <input type="checkbox"/> Release notes               | <input type="checkbox"/> Other                     |
| <input type="checkbox"/> Knowledge base articles  | <input type="checkbox"/> Requirements specifications |  |

Q12: For at least two of your most important products, describe the processes involved. Discuss how an information product would be created from start to finish – Who would initiate the task? How would that task be communicated to the individual(s) or teams involved? Who would be on those teams?

Q13: Of the following analytical approaches, which ones do technical communicators in your organization use?

- |   |  |                                       |
|---|--|---------------------------------------|
| <input type="checkbox"/> Analysis of technical support or customer support data | <input type="checkbox"/> Interviews with users or customers                            | <input type="checkbox"/> User Surveys |
| <input type="checkbox"/> Field testing  | <input type="checkbox"/> Search of marketing literature and development specifications | <input type="checkbox"/> Other        |
| <input type="checkbox"/> Focus groups   | <input type="checkbox"/> Usability analysis and testing                                |                                       |
| <input type="checkbox"/> Hands on testing                                       |  |                                       |

Q14: Which social media are technical communicators using in the product development cycle, and how? Please comment to the right of any items you check.

- |                                   |   |                                |
|-----------------------------------|---|--------------------------------|
| <input type="checkbox"/> Blogs    | <input type="checkbox"/> Internal system (such as Microsoft Lync) | <input type="checkbox"/> Wikis |
| <input type="checkbox"/> Facebook | <input type="checkbox"/> Twitter                                  | <input type="checkbox"/> Other |

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Q15: What standards and regulations drive your process and product development?

- |   |   |
|---|---|
| <input type="checkbox"/> Darwin Information Typing Architecture (DITA)                                      | <input type="checkbox"/> ISO/IEC/IEEE 26514, Requirements for testers and reviewers of user documentation |
| <input type="checkbox"/> ISO IEC 15289, Content of life-cycle information documentation                     | <input type="checkbox"/> ISO/IEC/IEEE 26515, Developing user documentation in an agile environment        |
| <input type="checkbox"/> ISO/IEC 12207, Software life-cycle processes                                       | <input type="checkbox"/> Rehabilitation Act of 1973, Section 508, Accessibility standards                 |
| <input type="checkbox"/> ISO/IEC 15288, System life-cycle processes   | <input type="checkbox"/> W3C Web Content Accessibility Guidelines (WCAG)                                  |
| <input type="checkbox"/> ISO/IEC/IEEE 26511, Requirements for managers of user documentation                | <input type="checkbox"/> XHTML  |
| <input type="checkbox"/> ISO/IEC/IEEE 26512, Requirements for acquirers and suppliers of user documentation | <input type="checkbox"/> XML  |
| <input type="checkbox"/> ISO/IEC/IEEE 26513, Requirements for testers and reviewers of user documentation   | <input type="checkbox"/> No standards   |
|   | <input type="checkbox"/> Other  |

Q16: What is the role of user-generated content, if any, in your documentation cycle?

Q17: How important are the following skills and competencies for technical communicators to learn and practice today? Please mark as follows: 1 = mission-critical; 2 = important; 3 = useful, but not essential; 4 = not necessary; 5 = not desirable.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Audience analysis      | <input type="checkbox"/> Information architecture  | <input type="checkbox"/> Visualization    |
| <input type="checkbox"/> Communication strategy | <input type="checkbox"/> Information design        | <input type="checkbox"/> Working in teams |
| <input type="checkbox"/> Content development    | <input type="checkbox"/> Knowledge management      | <input type="checkbox"/> Writing          |
| <input type="checkbox"/> Critical thinking      | <input type="checkbox"/> Managing distributed work | <input type="checkbox"/> XML, DITA, etc.  |
| <input type="checkbox"/> Document design        | <input type="checkbox"/> PHP, C++, etc.            | <input type="checkbox"/> Other            |
| <input type="checkbox"/> Field research         | <input type="checkbox"/> Usability research        |   |

### Training and Education

Q18: Rank the following credentials in terms of which best signifies technical communication skills and competencies.

- |  |  |
|--|--|
| <input type="checkbox"/> Degree in Technical or Professional Communication | <input type="checkbox"/> Industry certifications on skills/software (Microsoft, Adobe, etc.) |
| <input type="checkbox"/> Degree in English, Communication, Journalism      | <input type="checkbox"/> Training courses from professional organizations                    |
| <input type="checkbox"/> Technical degree                                  | <input type="checkbox"/> Certification from professional organizations                       |
| <input type="checkbox"/> Certificate in TPC from college or university     | <input type="checkbox"/> Combination of the above  |
| <input type="checkbox"/> Other liberal arts degree                         |  |
| <input type="checkbox"/> Scientific degree                                 |  |

Q19: What kinds of training or training support does your company provide technical communicators?

- |   |  |
|---|--|
| <input type="checkbox"/> Formal in-house training             | <input type="checkbox"/> Support for external self-paced training            |
| <input type="checkbox"/> Informal in-house training           | <input type="checkbox"/> Support for traditional education (college degrees) |
| <input type="checkbox"/> Mentorship program                   | <input type="checkbox"/> Other   |
| <input type="checkbox"/> Support for external formal training |  |

Q20: What support does your company offer for professional development of technical communicators? Please mark all that apply.

- |  |   |
|--|---|
| <input type="checkbox"/> Support on a case-by-case basis                                 | <input type="checkbox"/> Support for travel to professional conferences and conventions |
| <input type="checkbox"/> Time to contribute to professional organizations and activities | <input type="checkbox"/> No specific support  |
| <input type="checkbox"/> Support for professional licensing and certification fees       | <input type="checkbox"/> Other  |

Q21: If your employees need professional development, which of these options would you recommend?

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Advanced degree in TPC       | <input type="checkbox"/> Other trade webinars           | <input type="checkbox"/> STC sponsored certificates |
| <input type="checkbox"/> Academic certificate program | <input type="checkbox"/> Other professional association | <input type="checkbox"/> Other                      |
| <input type="checkbox"/> STC sponsored webinars       | certificates or courses                                 |   |

Q22: How are training, education, and professional development for technical communicators valued or recognized in your organization?

Q23: If you could give academic program directors one piece of advice to make sure their programs were meeting the needs of the field, what would it be?

### The Future of Technical Communication

Q24: Broadly, where do you see technical communication going as a profession and as an activity in the next ten years?

Q25: Technical communication has had a long-standing discussion about how to solidify the profession – for example, through academic program accreditation, professional certification, professional development, and other activities. What do you think are the biggest impediments to professionalization in technical communication? Please comment on any choices you make.

- |  |  |
|--|--|
| <input type="checkbox"/> Changes in corporate culture  | <input type="checkbox"/> Lack of interest in professionalization among employers               |
| <input type="checkbox"/> Changes in technology or society                                      | <input type="checkbox"/> Lack of interest in professionalization among technical communicators |
| <input type="checkbox"/> Changes in the economy  | <input type="checkbox"/> Other   |
| <input type="checkbox"/> Globalization   |  |
| <input type="checkbox"/> Lack of demand for well-educated or certified technical communicators |  |

Q26: What kind of credentials, education, training, and professional development will employers expect of someone entering the field in 2024?

Q27: Technical communication currently can include many career paths (such as content strategist, specialized technical writer, usability professionals, etc.). In what directions will professional technical communicators specialize in the next ten years? What specialties will become less relevant (or even obsolete)?

Q28: What developing technologies will be the next big thing for technical communication in the near future – say the next five years? Conversely, what technologies will we abandon in that time?

Q29: For each of the following items, give us your best sense of whether it will increase in importance to the profession of technical communication, decrease in importance, or stay about the same in the next 10 years.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Collaboration          | <input type="checkbox"/> Multiple Media                  | <input type="checkbox"/> Undergraduate Education in TPC |
| <input type="checkbox"/> Data Visualization     | <input type="checkbox"/> Subject Matter Expertise        | <input type="checkbox"/> Writing and Editing            |
| <input type="checkbox"/> Mobile Platforms       | <input type="checkbox"/> Usability and Usability Testing | <input type="checkbox"/> Graduate Education in TPC      |
| <input type="checkbox"/> Distributed Content    | <input type="checkbox"/> Web Development                 | <input type="checkbox"/> Professional Certification     |
| <input type="checkbox"/> Interface Design       | <input type="checkbox"/> Information Architecture        | <input type="checkbox"/> Policy Writing                 |
| <input type="checkbox"/> User Metrics           | <input type="checkbox"/> Product Documentation           | <input type="checkbox"/> Process Documentation          |
| <input type="checkbox"/> User-Generated Content | <input type="checkbox"/> Professional Development        |   |

Q30: Will the role of user-generated content increase in importance in the next ten years? What role will professional technical communicators play in relation to that content?

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### Appendix B: Round 2 Survey

#### Identities and Relationships

Q1. In what leadership or managerial positions do technical writers currently serve in your organization?

Q2. Usability came out as largely separate from TC on the question about the relationship between fields, and on the analytical approaches question it came out near the bottom in importance. What do you see as the relationship between usability testing and technical communication?

Q3. What factors influence actual job titles of technical communicators in your company? In what ways?

Q4. Please comment on the differences you see in the radar charts showing responses to the question, “What’s the relationship in your company between technical communication and similar fields...?” (For your convenience, the charts are reproduced below.)

#### Products and Processes

Q1. In Round 1 (see chart below) most of you reported that your technical communicators spend much of their time and energy creating instructional products (e.g., user manuals, online or embedded help). But we found it interesting that the second tier of common products included policy documents and “how-to” videos. While “how-to” videos clearly fall under the larger category of instructional products, the medium is not often one used by technical communicators. If your technical communicators are producing “how-to” videos or you think they might be doing so in the near future, would you discuss who else in your organization, if anyone, works on these products?

Q2. Have you hired technical communicators with video production skills in mind? If not, have you offered additional training or sent your technical communicators to workshops/classes?

Q3. Are “policy documents” and white papers genres that most technical communicators you hire feel comfortable writing? If not, do you hire technical communicators with a specific skill set for these products? If so, what would that skill set include?

Q4. In the question “Of the following analytical approaches, which ones do technical communicators in your organization use?” the range of analytical approaches to data gathering was broad, with every category selected (see the graph below). However, interviews seemed most valued.

Q5. What special training, if any, do you provide, support, or expect of technical communicators using these interview methods?

Q6. Research skills (usability research, field research) came near the bottom of the list of desired skills and competencies (see chart below). Recognizing that this was a relative ranking and that all of the entries might be important in their own way, why do you think research skills came out at the bottom of the list?

Q7. In a number of places, respondents commented that Technical Communication is moving toward a greater involvement in design—interface design, product design, etc. Yet most of the top-ranked products (planning docs, FAQs, instructions) are pretty traditional. Is this a contradiction? If so, what is its significance? If not, how is design playing a larger role in these traditional products?



Q8. Do you see the relationship between technical communicators and social media changing as the influence of cloud technologies grows? How would you describe that change?

Q9. Besides basic XML, two items in the standards and regulations question stood out: W3C and the Rehabilitation Act of 1978, Section 508.

Q10. How are your technical communicators involved in accessibility research or standards compliance?

Q11. Has this involvement increased or decreased in the last five years?

Q12. Only one respondent specifically focused on the Agile/Scrum approach to project management. If you are not this respondent, has your company tried this approach? If it has, but you're not using it, would you comment on why? What are the pros and cons of this approach, in your view?

### **Training and Education**

Q1. Traditional college degrees in TPC, English, Communication, or Journalism came out as the most desirable credentials. What is it about these traditional college degrees that you value in potential employees?

Q2. What do you see as the differences between a degree in Technical or Professional Communication and a degree in English/Communication/Journalism?

Q3. Responses about professional development were split, with some companies placing a high value on it, and others not so much (see responses below). What do you think causes this difference? And if not through professional development, how do employees stay current with broader trends in the field?

### **The Future of Technical Communication**

Q1. What challenges do you see ahead as technical communicators move to an emphasis on design and visual communication such as interface design, product design, information design, video production, etc.?

Q2. A number of comments from the "next ten years" question in Round 1 (see below), as well as elsewhere, suggest that tech comm will broaden beyond writing to include people who can write, design, curate, and deliver content – currently tasks done by multiple people (writers, designers, information architects, web/social media designers, database designers, etc.). What implications do you think this might have for training, education, employment, and career paths for technical communicators?

Q3. Specializing is a common technique for increasing status and market value (medical GPs are paid less than medical specialists like cardiologists, for example). Yet comments in Round 1 suggest that specializing isn't an optimal future path for technical communicators:

- "Tech writers need to expand, not specialize."
- "No one will be a 'technical writer'. Everyone involved with technical content will be expected to author, edit, curate, and manage the content, and interact with customers via social media and other channels."
- "Demand will increase for content strategist and usability professionals. Demand will decrease for specialized technical writers."

What factors do you think are driving that demand for expansion? What impedes opportunities to expansion? How can companies and technical communicators overcome those obstacles? What are the potential dangers of expanding the role of technical communication? Benefits?

## Special Issue Introduction

Q4. Data visualization, collaboration, mobile development, and distributed content came up at the top of the list for increasing importance in the next 10 years (see graphic below). For each of these, answer the following:

Q5. Where do you see opportunities for technical communicators who want to into these activities? Particular industries, particular sites, particular kinds of projects, particular kinds of processes?

Q6. What barriers or opportunities do you see for technical communicators who want to go into these activities?

Q7. Specifically what contributions do you think technical communication can make to these activities that other fields and specialties can't bring to the table as readily?

Q8. For each of the following items, give us your best sense of whether it will increase in importance to the profession of technical communication, decrease in importance, or stay about the same in the next 10 years.

- |                             |                              |                                   |
|-----------------------------|------------------------------|-----------------------------------|
| • Collaboration             | • Multiple media             | • Undergraduate education in TPC  |
| • Data visualization        | • Policy writing             | • Usability and usability testing |
| • Distributed content       | • Process documentation      | • User metrics                    |
| • Graduate education in TPC | • Product documentation      | • User-generated content          |
| • Information architecture  | • Professional certification | • Web development                 |
| • Interface design          | • Professional development   | • Writing and editing             |
| • Mobile platforms          | • Subject-matter expertise   |                                   |

## Appendix C: Round 4 Survey

*(Protocol: Send out questions before web conference)*

### Identities and Relationships

Two visions for technical communicators arose in the conversations in Round 3. Some comments suggested that technical communicators must grow in more specialized ways, into roles such as usability expert, information designer, user experience designer, and so forth. Other comments suggested that technical communicators must broaden their skills, so they can contribute flexibly to product teams. At your company, which direction do you think technical communicators are or should be heading?

### Products and Processes

Some of the conversation in Round 3 suggests that technical communicators are increasingly involved in product design, as opposed to traditional post-design product documentation. To what extent do you see that happening in your organization? What implications do you think this shift will have in your organization and on the profession of technical communication?

### On the Horizon

What do you think are the three biggest problems or issues that the profession of technical communication will face in the next five years? How do you think the profession should respond to these problems or issues?

### Training and Education

For each of the three problems or issues you mentioned in the previous question, how do you think educators and training providers should respond?

### Open Response

What question should we have asked you that we didn't? How would you have answered it?

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# Complexities in Hybridization: Professional Identities and Relationships in Technical Communication

Craig Baehr

## Abstract

**Purpose:** This article provides a snapshot of how industry leaders currently conceptualize our identities and relationships, as well as some of the challenges we continue to face as a profession.

**Method:** This study used a modified Delphi method. To gather data, we used two sets of survey questions and two structured interviews.

**Results:** Technical communicators are functioning as agile, adaptable, and multi-specialists in a broad range of organizational functions. They have become increasingly visible and valuable assets throughout a project lifecycle, and in many cases are able to define their own roles, which include team leadership and management responsibilities.

**Conclusion:** Technical communicators continue to serve in core functional responsibilities in a wide range of industries.

**Keywords:** professionalism, technical communication, skills, job titles, relationships, organizations

## Practitioner's Takeaway

- Multiple skills and specializations define technical communicator roles within organizations, while agility and adaptability often determine a best fit in terms of roles.
- Technical communicators with a breadth of both project experience and specializations typically prove to make successful project managers for technical information products.
- Job titles tend to be largely defined by the nature of content and product families within organizations that employ technical communicators.
- Technical communicators are becoming increasingly visible and valuable contributors throughout a product lifecycle, rather than during one or more phases of projects.

## Introduction

The identities and relationships that define technical communicators demonstrate breadth and depth, in both skills and experience. In specific workplace settings, our identities are further defined by specific specializations, job titles, functions (within an organizational structure), and relationships with peers, subject matter experts (SMEs) and managers. We are also defined through our education, practices, standards, processes, as well as our uses of technology, tools, language skills, and media. We have sources of codified knowledge, including books, journals, magazine, information products, a body of knowledge, and formal and informal educational programs and credentials. As technical communicators, we are interdisciplinary; we are user experience designers, information architects, information developers, writers, editors, educators, and more. Our roles in professional contexts are often complex, and as a result, many of technical communicators are considered to be hybrids of sorts, with experience in both professional and academic contexts. In short, technical communicators are adaptive, resourceful, and agile in the work they do.

Our identities are also an extension of this work, and can be characterized as highly collaborative, multimodal, interdisciplinary, geographically dispersed, user-driven, and technologically mediated and situated. Statistical trends and technical communication research support many of these major themes. Almost all working technical communicators have bachelor's degrees and nearly half (46%) hold higher degrees (Hart & Conklin, 2006). We have extensive disciplinary and interdisciplinary connections, and technical communication products are a valuable part of virtually every industry. In 2013, the top ten industry sectors that employ technical communicators included computer systems design, architectural and engineering services, management/scientific/technical consulting, employment services, software publishers, scientific research and development, management, publishing, instruments manufacturing, aerospace (2013–2014 STC Salary Database). As a result, we not only draw from a range of core and related skill sets, but we work closely with SMEs, and can be found serving vital roles with a broad reach across all levels of an organization.

It should come as no surprise, then, that with identities and relationships that are broad and diverse, our reach and value is equally so. The range of jobs in technical communication today includes

technical writers and editors, indexers, information architects, instructional designers, technical illustrators, globalization and localization specialists, usability professionals, visual designers, Web designers, teachers and researchers, and trainers (STC Web site). In terms of our collaborative contributions, most technical communicators spend between 20 and 80% of their time working on teams in a variety of roles and specializations (Hart & Conklin, 2006). And considering our location and value, in 2013, in the United States, ten states accounted for more than half (54%) of all technical writers: California, Texas, Virginia, Massachusetts, Maryland, New York, Florida, North Carolina, New Jersey, and Illinois (2013–2014 STC Salary Database). The average annual wage reported for a technical communicator was \$67,900, ranging from \$40,270 to \$105,760 (2013–2014 STC Salary Database). Undoubtedly, other contributing factors and characteristics help define our identities and relationships as technical communicators. Some of these factors we know from this historical information, but understanding how our roles and relationships have evolved, particularly within industry, is of great importance.

This article is one part of a special issue of *Technical Communication* reporting the results of a large study of technical communication managers from prominent companies in the tech sector, including Adobe, Boston Scientific, Computer Associates, Google, IBM, Madcap, and Oracle. These managers served on the Advisory Council for the Society for Technical Communication in 2013–2014.

This article reports the results of one part of that study, focusing on technical communication Identities and Relationships and how they have evolved in some of the top companies that employ technical communicators. It is accompanied by two other articles, which address findings about other pertinent aspects of technical communication today: Products and Processes (Dubinsky, 2015) and Education and Training (Kimball, 2015b).

In focusing on Identities and Relationships, this article challenges some of the preconceptions and past trends, asking questions to explore a deeper understanding of what skills, specializations, experience, jobs, and values define our roles and relationships within industry settings. This study aims to provide a snapshot of how industry leaders currently conceptualize our identities and relationships, as well as some of the challenges we continue to face as a profession.



## Identities and Relationships in Technical Communication

### Literature Review

Our professional identities and relationships continue to evolve with our processes, products, standards, and technologies. Reviewing a selection of scholarship from the past decade provides a snapshot of the profession as well as a contemporary perspective, which largely informed the questions asked in the study. This selection summarizes some of the selected trends related to the identities and relationships of technical communicators in the profession, and reveals some interesting, but somewhat unsurprising trends.

One way our profession has been defined is through the efforts toward creating a set of core skill areas for professional certification. Early certification efforts led by members of the STC in the mid-1990s focused on eight core competencies: advocacy, design, execution, innovation, use of media, research skills, user of support tools, and usability (Turner & Rainey, 2004). These were later revised into nine core competencies: project planning, project analysis, solution design, organizational design, written communication, visual communication, content development, content management, and final production (qtd. in Coppola, 2011). In a comparison of competencies from both academic and professional sources, Coppola (2011) concluded that our core competencies must be defined by knowledge and skills, in addition to the products and processes. She further argued that “disciplinary status is closely aligned with professional status,” and that professionalization speaks to how we create a common identity (Coppola, 2011, p. 282). In a special issue on the Technical Communication Body of Knowledge (TCBOK), Hart and Baehr (2013) suggest that the boundaries that shape our discipline are determined by the “tacit practices, skills, experiences, products, processes, and interdisciplinary knowledge” of the field (p. 259). Similarly, these boundaries help define the professional identities of technical communicators.

Another trend related to identities and relationships suggests an increasing connection between roles and products in the work technical communicators produce. (For more on the products and processes of technical communication, see Dubinsky 2015 in this special issue.) Conklin (2007) concludes “the practice of technical communication work is becoming more interactive and collaborative, and less solitary and textual,” suggesting an interesting parallel relationship between product and

identity (p. 210). In essence, as our work becomes more interactive and collaborative, so do our professional relationships with colleagues, customers, and peers.

Conklin also found that while technical communicators were responsible for individual products, their roles have expanded into areas such as project managers and relationship builders within a workplace (Conklin, 2007). Echoing this trend, Spinuzzi (2007) argues that technical communication work has become increasingly distributed “across time, space, disciplines, fields, and trade,” influenced undoubtedly by various stakeholders and technologies (p. 272). Technical communicators’ identities are defined, in part, by the work they do, and that has been moving increasingly toward information sharing, single sourcing, project management, and content management (Spinuzzi, 2007).

Yet technical communicators’ identities and relationships are also closely linked to process. Hart and Conklin (2006) suggest a close functional relationship between successful technical communicators and their ability to operate relative to corporate business and strategic processes. This underscores the importance of professional identity as a function not just of product, but also of process. Furthermore, their study of technical communicators revealed professionals serving in multiple roles, including writer, information management, publications manager, information architect, and editor, among others (Hart & Conklin, 2006). Hart and Conklin’s analysis of themes from discussions with their sample of technical communicators revealed the following to be most significant: business, interaction, self and technical communication, clients and users, organizing, and technology (Hart & Conklin, 2006).

In a related study, Slattery (2007) argues that both the experience and strategies that technical communicators use to manage complex information environments influence “what it means to be a technical writer in the 21<sup>st</sup> century” (p. 323). He further suggests that the expertise of technical communicators has evolved and is no longer relegated to the simple assemblage of documents or technical skills, but is more holistic in nature (Slattery, 2007). This would seem to suggest technical communication professional identities are defined in part by the breadth of skills, rather than depth in a particular singular specialization.

And finally, another interesting trend in technical communication identities and relationships underscores

some of the tensions which impact our professional standing. Hackos (2005) notes the potentially disruptive effect of technology on the future of the profession and its identity, and suggests that to help mitigate this effect, a focus on creating information products that best suit customers' needs is a critical success factor. Rude (2008) underscores the tensions in the relationships between technical communication researchers and practitioners in her special issue on public and community discourse. She acknowledges that research results have "entered our classrooms and have influenced the identity of the field, but researchers and teachers do not have the direct pipeline to practices that we have as academics preparing students for work as practitioners in corporate settings" (Rude, 2008, p. 268). It would seem the profession still has challenges with how technology and partnerships (between academic and professional sectors) affect how our identities evolve and how best to collaborate within the umbrella of interdisciplinary specializations that currently define the field. This study explores questions related to many of these important trends and tensions that have characterized the profession over the past decade.

## Summary of Methods

For a full description of the methodology for the entire study, please refer to the issue introduction (Kimball, 2015a). But in short, we conducted a modified Delphi study, which is a methodology intended to assess the ideas and opinions of a group of experts by asking them to address similar questions through several rounds of surveys, interviews, and focus groups. Specifically, we conducted four rounds of data collection:

- Round 1: survey
- Round 2: survey
- Round 3: face-to-face focus group
- Round 4: synchronous online focus group

The population for the study was small, defined by the membership of the STC's Advisory Council. Nonetheless, the iterative framework provided by a Delphi study generated a large amount of data for analysis and comparison, including survey data, written comments, textual transcripts, and observational notes.

Given the large and multivariate nature of the data, we employed text mining and visualization techniques extensively to code and identify patterns

and contradictions in the attitudes expressed by the participants. Statistical information graphics including bubble graphs, spark line graphs, and radar charts were created using content analysis themes, categories, and relationships. These graphics provided us with a more objective perspective than simple subjective interpretation would allow, and arguably greater reliability than manual content analysis, which relies on subjectively derived codes to begin with. This analysis revealed interesting, though inevitably provisional and exploratory findings.

The purpose of this portion of the study was not to review what we already know, but rather to provide a snapshot of professional identities of the field from a contemporary industry perspective, filtered through the lens of academic inquiry. Specifically, this portion of the larger study attempted to address the following questions:

- What roles should technical communicators play in organizations?
- What organizational structures enable technical communicators to do their best work?
- How do technical communicators see themselves relating to SMEs, users, and management?
- How do we describe that role in terms of job titles and professional identity and what are the implications of this naming?

The following sections provide a summary of results from the survey rounds, focus group rounds, and a concluding discussion.

## Rounds 1 and 2: Survey Results

The first two rounds of the study consisted of surveys including questions related to professional identities and relationships. The first round of questions was presented as an online survey with the scope of questions focusing on specifics related to the professional identities and relationships technical communicators have within specific industry settings. These questions aimed to explore the kinds of job titles, relationship to other fields and specializations, level of autonomy, advancement opportunities, and how the technical communicator role has changed over the past five years. The second survey round consisted of followup questions explored the leadership and management roles, the relationship between usability studies and technical communication, factors that influence job titles, and the relationships between technical

## Identities and Relationships in Technical Communication

communicators and related disciplines. Each subsequent section below presents a summarized question followed by a discussion of the results from participants.

### Survey Round One

Participants were provided a list of questions, provided below, along with a summary of response trends and related visual information graphics. The following categories represent the range of topics addressed: (1) job titles and organizational context, (2) relationships between subfields and related disciplines, (3) role of autonomy, authority, and advancement, and (4) changes in roles and staffing. A summary and discussion of the results by individual category is provided below.

**Job Titles and Organizational Context.** This category of questions focused on where in the company technical communicators work, who supervises, and who evaluates them. The following questions were asked:

- What do you call your company's technical communicators what are their job titles?
- For whom do your technical communicators work? Who supervises them? Who evaluates their performance?
- Describe the organizational context in which your technical communicators work. Do they work in a separate publications group? As part of a multifunction team? With whom do they work every day? With whom do they interact less directly?

Technical writer, information developer, and content developer were identified multiple times, from the wide range of titles selected. In many cases, participants selected more than one title, likely due to the breadth of function of technical communicators in their organization (see Table 1). In some cases, many technical communicators were identified as having highly specialized or even dual titles.

In terms of organizational location, participant responses included the following: quality / research & development, information services, and information development departments. In some cases they worked in centralized teams, and others were separate groups such as a documentation team. In many cases they reported to a manager, but also received regular feedback or worked closely with SMEs and peers in other departments. Generally, their work is directly supervised or evaluated by team leaders and department managers.

**Table 1. Technical Communication Job Title Responses**

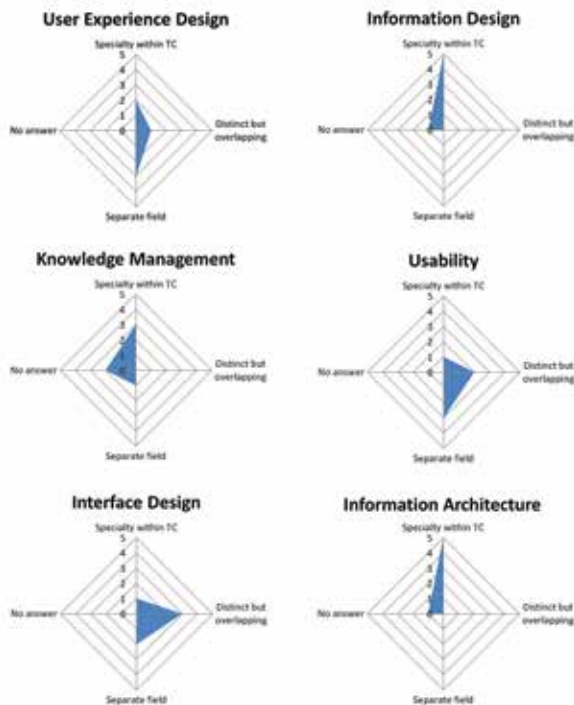
Answer	Count
Technical writer	3
Information developer	3
Other	3
Content developer	2
Technical communicator	1
Technical documentation specialist	1
Technical author	1
Communications manager	1
Documentation manager	1
Publications manager	1
Publications specialist	1
Information designer	1
Technical editor	1
Information services engineer	0
Software engineer	0
Documentation writer	0

These results would seem to suggest that while technical writing and information development continue to be essential roles, many technical communicators are defined more broadly by a wide range of skills and disciplinary functions.

**Relationship Between Subfields and Related Disciplines.** This question explored the relationship between what technical communicators do in that workplace context and their relatedness to other subfields/related disciplines. The following specific question wording was used:

What's the relationship in your company between technical communication and similar fields that deal with the design, development, and distribution of technical information for users?

Six categories were provided, including user experience design, information design, knowledge management, usability, interface design, and information architecture. For each category, participants used the following scale to describe the relationship between a category and its relationship to the field from the following list: specialty within technical communication, distinct relationship but overlapping, separate field (see Figure 1).



**Figure 1. Radar Charts Showing the Relationship Between Disciplines and Technical Communication**

Participants identified information design, information architecture, and knowledge management as distinct specialties within technical communication. Participants varied their responses describing the relationship between the other three specialties—usability, interface design, and user experience design. More participants characterized their relationship as separate fields, rather than core competencies within technical communication. And a few indicated that these areas were distinct skill sets within technical communication, but perhaps overlap with other disciplines. What this suggests is that information design, information architecture, and knowledge management are essential skills within technical communication, while usability, interface design, and user experience are valued skills, which may or may not be considered to be a part of core competencies of technical communicators in all organizations.

#### **Role of Autonomy, Authority, and Advancement.**

This category asked participants to discuss advancement opportunities, as well as the level of autonomy and authority in technical communication roles. The following open-ended questions were asked:

- Describe the typical pattern for advancement or promotion for technical writers in your company (if

there is one). Do they generally stay in the field of technical communication, or branch out into other roles? If the latter, what other roles? How long are they likely to stay at a particular level along this path?

- How much autonomy and authority do your technical communicators experience? In other words, in what areas or aspects of your company's activities are technical communicators considered the experts?

Responses to these questions were somewhat brief and tended to vary widely by company. Many technical communicators are considered to be disciplinary experts in fields such as user experience, information architecture, product documentation, and as general word experts. As such, many had a great deal of autonomy in content creation or assumed direct responsibility for what they produce. In terms of career progression, participants reported that a majority stay in the field or in technical communicator roles, although the names of those roles may change depending on organizational change. Some move into other fields such as project management. In one particular case a “writer moved into a hybrid role that included tech writing, product operations and platform management.” These responses suggest that while technical communicators have some degree of autonomy within organizations, they must also be adaptable to other roles as part of their career progression.

**Changes in Roles and Staffing.** This final category explored how the role of technical communicators in the organization has changed in recent years, including staffing levels. One open-ended question and one multiple choice question (with comment option) were asked:

- In the past five years, how has the role of technical communicators in your organization changed?
- In the past five years, how has the number of technical communicators changed in your organization? In the comment area, please tell us why you think this change occurred.

Responses suggested that roles change with specific technologies and business operations. Technical communicators have been moving from a passive to a more active role, with increased autonomy, greater management responsibility for information products, new roles, working on multiple projects simultaneously, and the use of fewer job titles to complement specific business



## Identities and Relationships in Technical Communication

practices. Technical communicators are considered to be “product experts” which have become “hubs” for engineering, services and training. One response stated that roles have changed dramatically, with new roles created “to better complement our company’s agile approach to product and information development.” Responses also show that most participants perceived an increase in the number of technical communicators in their organizations or a maintenance of the status quo; only one reported a small decrease. (see Table 2).

**Table 2. Trends in Number of Technical Communicator Jobs by Organization**

Answer	Count
Increased more than 50%	2
Increased up to 30%	1
Increased up to 10%	0
Stayed the same	2
Decreased up to 10%	1
Decreased up to 30%	0

Participants offered specific reasons for this growth or maintenance of numbers in their written comments, which included the “volume and complexity of products,” “aligned with portfolio management,” and more international hires in countries such as the Czech Republic and India. While the general trend suggested that technical communicator staff either increased or stayed the same, many of the reasons for these changes were linked to products, team functions, or specific organizational needs.

### Survey Round Two

One of the purposes of the initial survey round was to collect basic statistical data and responses to help build subsequent rounds of questions, and to provide participants with summaries of previous comments and trends in overall responses. These trends led to questions related to leadership and management, usability, roles, and subfields or related disciplines. While shorter in length, the questions in this round were designed to pinpoint specific points of interest from round one. To better illustrate these trends, participants were furnished with a summary report of responses from the first survey round, including related information graphics, from which followup, open-ended survey questions were produced.

**Leadership and Management Roles.** The first followup question focused on the specific leadership or management roles technical communicators serve in the organization. Since many participants identified the importance of team leadership or management responsibilities, the followup question asked was:

In what leadership or managerial positions do technical writers currently serve in your organization?

While responses tended to be short for this question, the general trends in responses suggested that technical communicators serve in leadership and management roles at all levels, including manager and director positions, in some cases. One response indicated that they “serve in first line, second line, [and] executive management” which included responsibility for areas such as “content strategy, information architecture, [and] content team leadership.” Other specific roles identified included documentation manager and technical writing manager. In a few responses, it was either not applicable or very few managers had technical writing backgrounds. The specific leadership and managerial positions seemed to be largely dependent on the organizational structure, although in some cases, it was not clear why a few organizations had few managers with technical writing backgrounds.

**Usability and Technical Communication.** This followup question focused the relationship between technical communication and usability in roles and functions within an organizational context, which came up in first round survey responses. This specific question asked was:

Usability came out as largely separate from TC on the question about the relationship between fields, and on the analytical approaches question it came out near the bottom in importance. What do you see as the relationship between usability testing and technical communication?

Responses supported the notion that usability and technical communication roles in their organizations shared an integral relationship. The relationship between the two was suggested to be essential and a component of user-centered design. Participants



characterized the relationship between usability and technical communication as follows:

“Content is a product like the software, hardware, etc., that our companies create. Thus, we believe technical communication of any kind should be subject to user-centered methodologies, such as usability testing, but also including user research, scenario development, persona development, etc., in service to designing the appropriate content and content experience.”

“Absolutely essential. Our writers work very closely with UX in multiple areas: Observing client tests to see how they use the product, user research, UI terminology and product usability. UX and writing teams are in a similar position: outside of engineering but part of the development process.”

“UX is also an area that writers can move to as their careers develop.”

One participant noted a disconnection between usability and technical communication, though it was unclear what the specific causes for that disjunction might be:

“The [two] of them in current state (practical reality) do not go hand in hand. They are very disjointed. If technical writing can be done based on the real use cases utilized to develop the process/ system it might be a different story.”

Earlier responses from Figure 1 suggested that usability and user experience design were either somewhat related or considered to be a separate discipline from technical communication. Here, however, responses suggested that usability and user centered design were integral to the work that technical communicators produce in these organizations. In some cases, technical communicators, as writers, could even move into user experience design as part of their career progression.

**Factors Influencing Naming of Job Titles or Roles.** Building on responses from the first round, this followup question explored how key factors influenced names selected for specific job titles in the organization:

What factors influence actual job titles of technical communicators in your company? In what ways?

Responses to this question included the following:

“TCers are members of the software development job family, thus the TC titles are related to the software developer titles. A technical communicator in our company can rise to the level of Senior Technical Staff Member, for example, and that is a (traditionally) software development (and other technical job role) designation. We also consider industry-standard roles, such as information architect and content strategist or designer. We often describe TCers in 2 ways—the software-development oriented title and a more content-oriented descriptive role title.”

“We have a tech writer job ladder, so that is their official title, but they can call themselves whatever they want in their intranet profiles.”

Generally, the responses illustrated a wide range of contributing factors, which included where in the organization the job was located, the amount of time spent creating content, the relationship to products, or in some cases, self-selected titles. Based on the responses to this question, job titles seemed to be more driven or influenced by organizational context, rather than specific trends in the field or in other organizations.

#### **Relationship to Subfields and Related Disciplines.**

To further explore the relationships between technical communication and subfields/related disciplines, a followup question was asked, presenting participants with the radar charts (Figure 1) and a revised question asking participants to comment on the results:

Please comment on the differences you see in the radar charts showing responses to the question, what’s the relationship in your company between technical communication and similar fields?

Specific responses to this followup question included the following:

“In our company today, UX design, interface design, and usability are all considered one field—specialties, perhaps, but one field. Information

## Identities and Relationships in Technical Communication

design and information architecture are considered a second field. We don't really have a practice called 'knowledge management' in our company, although sometimes tech support has a specialty dealing specifically with content and those folks call themselves 'knowledge managers.'"

"User Experience: logical that it would spread vertically. Info Design: is usually specialized w/in TC. Knowledge Management: should be 50/50 on vertical scale and lean to the right. UX: usually more engineering related. UI: the current model matches our company. Info Arch: I wouldn't see this as specialty w/in TC; would partly come from separate fields."

"Technical Communication is much related to information design."

Generally, these responses confirmed that the trends illustrated in the radar charts seemed to accurately represent the participants' experiences. In a few cases, responses attempted to clarify relationships between disciplines within their organizational context. While these skills or specialties differ between organizations, in terms of their value or emphasis, collectively they function as core skills which adequately describe the work of technical communicators.

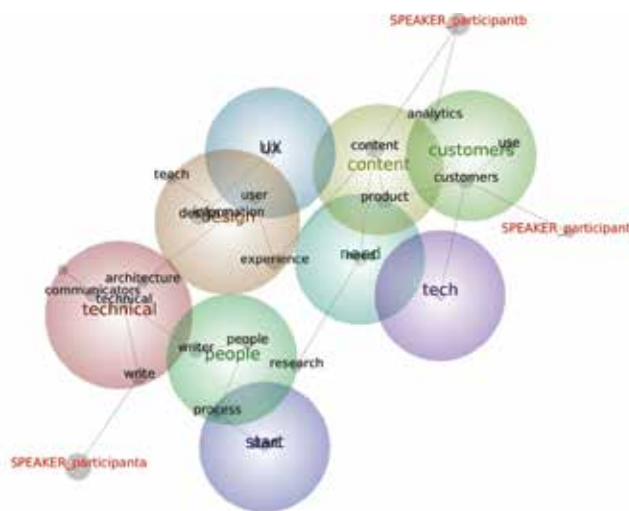
### Rounds 3 and 4: Onsite and Online Focus Groups Results

The final two rounds of this study included onsite (Round 3) and online (Round 4) focus group discussions. The onsite focus group discussion questions addressed followup questions related to the technical communicator's role in relation to information design, research, and individual specialization. The online focus group discussion focused specifically on a single question, which dealt with the evolution and future directions of technical communicators' professional identities.

#### Onsite Focus Group

The onsite focus group was conducted as a 90-minute meeting session with industry panel participants at the 2014 Society for Technical Communication Annual Summit. Questions asked participants to describe relational and conceptual aspects of information

design, research value, and specialization related to technical communicators in their organization. Two visions for technical communicators arose in the conversations in the onsite focus group discussion. Some comments suggested that technical communicators must grow in more specialized ways, into roles such as usability expert, information designer, user experience designer, and so forth. Other comments suggested that technical communicators must broaden their skills, so they can contribute flexibly to product teams. Several themes and related concepts also emerged from the discussion, which were mapped from a textual transcript of the session onto a bubble chart, provided in Figure 2.



**Figure 2. Bubble Chart Depicting Themes and Concepts from Onsite Focus Group**

Specific themes that emerged from the discussion are identified by large print text terms in the center of each of the bubbles. By default, themes are named by the most prominent concept in them. These themes included the following, in order of coherence: technical, design, content, customers, and people. (In addition, four themes stand alone, each containing a single concept; UX, need, tech, and start.) Within each sphere, each small text term represents related concepts (or topics) for each theme. For clarity, Table 3 lists each theme and its related concepts.

The specific questions asked in the focus group and selected quoted responses from the textual transcript are provided below. These responses provided insights about how design, research, and specialization relate

**Table 3. Themes and Related Concepts from Onsite Focus Group**

Theme	Related concepts
Technical	Technical, communicators, write, architecture
Design	Design, information, experience, user, teach
Tech	Tech
Start	Start, process
Content	Content, product
UX	UX
Need	Need
People	Writer, people, research
Customers	Customers, analytics, use

to technical communication in their respective organizations.

How do you define design, and what role in design do technical communicators have?

“It depends on the type of support you have from your organization. We took a bold step last year for mainframe products ... what we’ve done is we’ve brought in UX designers. We have a UX design team for mainframe products, for every single business line. So the conversation is now between them and Information Services.”

How do you define research in terms of it being something that a technical communicator might need to know how to do?

“You know, and then another one was we see trends across our company and industry as a whole that the focus is very tactical. We are so driven to create content of any kind i.e. for the product that we often do not consider for whom we are writing and what the writing contents should be. Hence research, which would shore up on us of who we were writing for, what content they need to achieve for their goals, is not of the highest importance.”

“Because you are so heavily invested in agile, we want these self-starting self-regulated teams.

And that’s what agile is all about. So in a way that’s actually helping information services at CA get people to be self-starters. Our information engineers are working with their architects with their information architects to develop those stories for each spread.”

Is specialization a good thing, a direction that technical communicators are going in, or is it something that we should be thinking more broadly about? Is it fair to say that these are more facets of technical communication that technical communicators are going to have to build skill sets into, or are they more like tracks?

“We see information architecture as a range of skills. Some of them are tactical. Every writer, every editor in my organization, IBM, has to have some degree of tactical information architecture skills.”

“It depends on the organization in which the writer’s employed. I mean IBM is obviously a lot more specialized, but if you have a one-man shop where there’s a tech writer, he probably has to learn the facets and be more broader, just to be more relevant in terms of user experience and QA to a certain extent, and some design aspects, oh yes to wear a lot of hats.”

“So you have to have the big picture, but when you start getting titles and starting to focus so it’s not a specialization is just where in spending my time, that’s this growth path. Because now you have more scope, you have more people you’re working with.”

The onsite focus group responses provided a number of interesting insights. First, the relationship between information design and user experience was again emphasized in the responses. When respondents were asked to identify these areas in terms of their relatedness to the field, they saw more separation as disciplines, but when describing their functions as skills sets in working situations, they saw them as much more integral and related. Second, research skills are acknowledged as important in user-centered content development, yet not considered to be absolutely essential to specific organizational roles. And while responses indicated “self-starters” and “agile” communicators were important to the team, the

## Identities and Relationships in Technical Communication

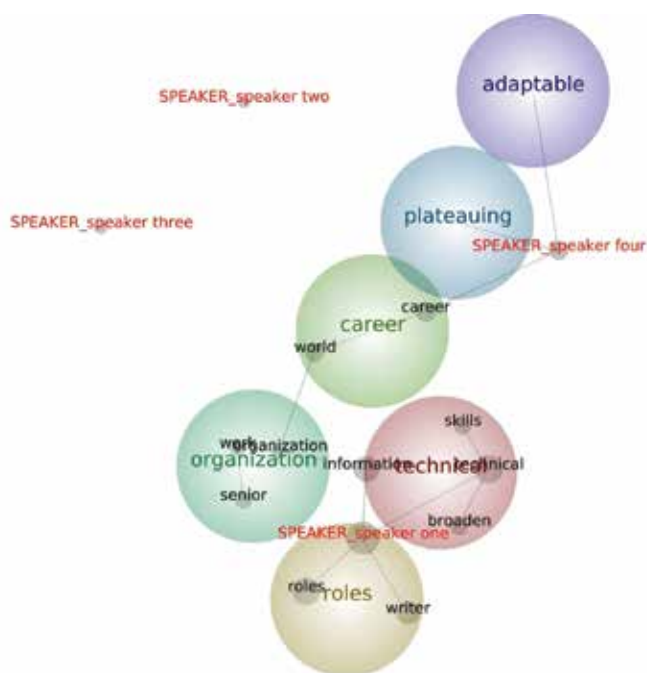
focus of the discussion seemed to emphasize “tactical” skills over research skills. And finally, with regard to specialization, individual areas of expertise were valued, but typically as part of a larger picture, or “growth path” for technical communicators. This seemed to suggest that possessing multiple skill sets is valued, especially since the trend in responses indicated that individual contributors were typically assigned a single, specialized function, in a team setting.

### Online Focus Group

The online focus group was conducted as a 60-minute online meeting, using GoToMeeting conferencing software, which included the use of audio and text chat. For identities and relationships, participants were asked only one core question:

At your company, which direction do you think technical communicators are or should be heading?

As with the onsite focus group, specific themes, concepts, and relationships were mapped from a textual transcript of the session onto a bubble chart, provided in Figure 3.



**Figure 3. Bubble Chart Depicting Themes and Concepts from Questions on Identities and Relationships from Online Focus Group**

Specific themes, identified by large text terms in the center of each sphere, included the following, in order of coherence: technical, adaptable, plateauing, organization, and career. Within these themes, several concepts, or smaller text terms inside spheres, were identified related to each major theme (see Table 4).

**Table 4. Themes and Related Concepts from Online Focus Group**

Theme	Related concepts
Technical	Technical, skills, information, broaden
Adaptable	Adaptable
Plateauing	Plateauing
Career	Career, world
Organization	Organization, work, senior

Selected quoted responses to this question are provided below, to help illustrate how respondents characterized these themes, concepts, and their relatedness within their respective organizational contexts.

*At your company, which direction do you think technical communicators are or should be heading?*

“I think that most of us are in agreement that the role of the technical communicator has to expand. I believe we have to keep pace with what’s happening in the world. Technology and information is just so fluid right now, and so dynamic. I think, in terms of the career path, technical communicators are, are not doing what they did even five years ago. I think they’re all being asked to do more and more and to broaden their skill set. And actually, from the career perspective, I think that for a technical communicator, that’s kind of exciting. Because I think that one of the things that they can do is, they learn new skills and grow these new skills. They have opportunities for other positions, especially in larger companies like mine. A technical communicator can easily move or, I should say, much more easily move, around the organization because of the skill set that we’re able to give them, and it goes well beyond writing.”

“It’s definitely more into the expectation to be more just more. Both a content curator, as well as you know, mobile today is a big thing. It’s going to be even more

mobile tomorrow. So the user experience, and even design to a certain extent is going to be expected.”

“We’re trying to find new and different ways where our information engineers can broaden their skills sets, broaden their roles, and be more integral in the agile scrum team.”

“You know, this is about technical communicators developing new skills and really broadening their skills. And user interface design, the whole user experience base, that’s part and parcel of good content, right? So if an information engineer, technical communicator, whatever you want to call them.”

“The technoratas, or the content contributors, ought to be more involved in the overall user experience and the design of the documentation, even the design of the product. We’ve seen it on our end. We try to get our technoratas on our end to be more involved in the design and usability, and I think it does depend on the organization, on how they’re structured.”

“They’ve really become very engaged in the entire life cycle, from product design, giving feedback, getting development to make changes, going back and forth.”

“I think often domain expertise is enough.”

In general, these responses seemed to suggest a general movement beyond individual specialized roles to more agile, broader, or flatter organizations. In terms of specializations and skills, participants acknowledged a difference between skills technical communicators acquire in educational and workplace settings. It’s also important for technical communicators to learn a breadth of specialized skills and to understand how to translate them into a product environments and varied user contexts. In particular, the last quote suggested that domain knowledge is highly valued, while tool knowledge (while valuable) is secondary, and better acquired skills while on-the-job. Equally interesting is the belief that specializations and skills will continue to broaden, and provide technical communicators with increased mobility and opportunities within these organizations. Additionally, there is a trend toward involving technical communicators throughout the entire product lifecycle,

perhaps due to the value they bring through a breadth of specializations. In summary, technical communicators continue to move into roles that suggest greater autonomy and serve essential functions throughout the lifecycle of information products.

## Main Findings

The findings from this portion of the larger study have important implications for the professional identities and relationships of technical communicators. In this portion we explored specific practices and trends in technical communication job titles, roles, specializations, skills, career opportunities, management roles, and relationships in teams and within a larger organizational context. In general, participant responses tended to be very idea driven and concept based, which is an outcome the Delphi method fosters.

Initially, it was anticipated there would be great differences in responses to many of the questions about identities and relationships. And in fact there were some differences in specific job titles, the value of skills or specializations, and even in the use of terminology. However, participants often used different terminology or titles even though they were expressing similar ideas as their peers.

In regard to job titles, specific titles are still largely defined by the nature of the content and product family within organizations. Organizational factors and even technical communicators themselves have influence in the acquisition and identification of job titles and roles. Jobs titles and roles within organizations also seem to be highly influenced by products themselves, and in some cases, by technical communicators with self-selected job titles.

In part, professional identities, including specific job titles and roles, are also formed and shaped by both skills and specializations. The specializations identified as most valuable or related to the profession included information design, knowledge management, and information architecture, while others such as interface design, usability, and user experience design were considered important, but weighed differently in organizational contexts.

However, breadth of specializations was also repeatedly mentioned as being important to technical communicators’ identities. In earlier rounds, some respondents said technical communicators should consider avoiding specializing in single areas such as



## Identities and Relationships in Technical Communication

information architecture or user experience design, in favor of maintaining a breadth of skills. This breadth would permit technical communicators to be more agile, adaptable, and flexible in their roles and to add greater value to organizations. Yet others suggested that specialization, in some sense, is inevitable. The role of specialization may still need to be explored to determine the optimum benefits of both breadth and depth of specific skill sets for the technical communicator.

While skills and specializations help define roles within the organization, successful technical communicators adapt to fit the mold of what is needed. Multiple specializations enable technical communicators to define their own roles, to a certain extent. In some cases, specializations lead to growth paths within organizational contexts. In terms of relationships and value, management and organizations understand individual technical communicators by their collective skill sets and specializations, rather than as a one-size-fits-all definition of their role. They have become increasingly visible and valuable assets throughout a project lifecycle, and in many cases are able to define their own roles, which include team leadership and management responsibilities. Furthermore, their roles and relationships continue to be equally influenced by product, process, and technology.

And, in terms of career advancement opportunities, technical communicators who demonstrate their abilities (and value) can more easily move into more managerial or team lead roles. Their ability to manage complex information products and documents, even on a micro-level (individual project), are valuable skills in managing projects, teams, and external contributors. As a result, technical communicators are proving to make good project managers and team leaders within these organizations.

### Conclusion

Future studies might address a broader range of industries and organizations that employ technical writers to understand the complexities in how different work processes impact our identities and relationships. Additional research might also focus on a deeper investigation into how products influence our roles and the specializations which contribute to the value technical communicators offer. As a field, we also need a broader understanding of the interdisciplinary

overlaps between technical communicators and related professions. And toward that end, we might also investigate how technical communication hybrids, either by education or experience, contribute to the complexities of our professional identities.

One thing is certain: our professional identity as technical communicators is both strong and vigorous. Technical communicators as a profession and as individuals have already “grown beyond the identity crisis of what to call ourselves or how to explain what we do as professionals” (Hart & Baehr, 2013). Organizations are recognizing the value we bring to the development and sustainability of information products, within a wide range of industries. Looking ahead, our identities will likely continue to broaden, as will the skill sets and individual specializations. Technical communicators should work toward multiple specializations to increase their breadth and value to organizations and the development of various information products. In terms of relationships, we are becoming increasingly valuable resources throughout the product lifecycle and should continue to find ways to become adaptable and agile communicators in the industries that produce technical information.

For a broader contextual perspective on the profession, read the introduction to this special issue (Kimball, 2015a) and the other two articles in this three-part study: Dubinsky (2015) on Products and Processes, and Kimball (2015b) on Training and Education.

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# Products and Processes: Transition from “Product Documentation to ... Integrated Technical Content”

James M. Dubinsky

## Abstract

**Purpose:** To examine the attitudes and perspectives of individuals in successful companies who manage technical communicators with a specific focus on the products and processes that make up the bulk of their work.

**Method:** This study used a modified Delphi method. To gather data, we used two sets of survey questions and two structured interviews.

**Results:** This research helped to further explain the relationship between what technical communicators produce and how these products function in situating or framing their producers in relation to other subfields/related disciplines, such as UX design, information design, knowledge management, usability, and information architecture.

**Conclusion:** While there is general agreement among the managers that the role of the technical communicator has to expand, there is no one clear agreed-upon strategy. Some companies are obtaining success using Agile methodology, while others are finding that this methodology, while stressing adaptability, is not easy to introduce. Corporate cultures do not change overnight. Still, integrated teams, a key component of Agile, are taking hold in most cultures. Equally important, the shift away from *writing* documents to *directing* content is well underway. The key now, as it has been for decades, is for technical communicators to highlight their value and make their contributions more visible.

**Keywords:** content management, content experience, products, processes, how-to videos, user advocates, Agile, design, productivity.

## Practitioner's Takeaway

- Technical communication managers believe that the roles for technical communicators need to expand.
- They argue that technical communicators need to focus on the “content experience” more than on simply writing and editing.
- They observe that technical communicators need to become much more attentive to customer satisfaction by managing content and keeping it “lean.”
- Certain skills need more emphasis, such as learning to interview, to develop effective videos, and to use social media to help orchestrate or facilitate the “content experience.”
- They encourage technical communicators to become stronger advocates for the value they add to the company.

## Introduction

In 2000, George Hayhoe, then the editor of this journal, outlined the foundational skills technical communicators should possess: “writing, editing, visual communication, multimedia, document design, audience and task analysis, usability testing of products and documents, and interpersonal communication” (p. 152). Our field was in the midst of “an exciting time for technical communicators” (Redish, 2002, p. vii), which was evident from the growth of membership in the Society for Technical Communication from “13,778 members” in 1991 to “21,789 members” in 2001 (Redish, 2002, p. vii).

By 2005, however, the tone had changed. In his introduction to a special issue of this journal on the future of the field, Hayhoe (2005) was less enthusiastic: “Our profession has certainly had its share of misfortune in the early years of this decade. I’m optimistic about the future, but it will require us to respond to challenges more daunting than any we’ve confronted before” (p. 265).

These challenges were, at least in part, marked “by the growth of technologies that promote an increase in the publication and distribution of content online, as well as interactive capabilities of computer and communication networks” (Carliner, 2010, p. 42). Confronting these challenges head on, a group of technical communicators at The Boeing Company (2008), wrote about how they had developed a “Future Skills team” which had its roots in “2003, [when] the Writing and Editing (W&E) organization rewrote their job descriptions” and expanded in scope in 2005 when “the Technical Communications group’s manager decided to form a small volunteer team.”

This evolution has led to shifting responsibilities, a wider range of tasks, and an increasingly complex set of strategies or processes. Our profession is quickly becoming one in which technical communicators need to be, in the words of the Future Skills team (2008), “versatilists,” who should be “full-time usability professional[s]” or “content-strategist[s]” (Redish, 2010, p. 195). A consequence of this shift is “the era of document-based information development (ID) ... is coming to an end” (Anderson, 2014, p. 10). Other practitioners have seen the shifts and attempted to describe them. Giordano (2011) explains it this way,

Twenty years ago the tech writer’s job resembled a game of hopscotch. It was very straightforward and predictable. We were the makers and keepers of procedural documentation. Technical writers around the world would get an assignment (hop), create an outline (hop), ask some people who know some things some questions (land), write a procedure or a manual ... and wait for the next revision... . These days our jobs are far more complex, and we typically travel well beyond creating traditional procedural documentation... . Today our game has evolved ... to playing with a Rubik’s cube.

Equally important are a number of other trends, which have resulted in “more technical communicators ... now working in project teams” (Hart & Conklin, 2006; Spilka, 2011, p. 5), and, as evidenced above, many members see the field changing names to “reflect [a] broader focus” (Spyridakis, 2009, qtd. in Spilka, 2011, p. 5). This broader focus includes areas such as information architecture, information design, management, and human factors and requires technical communicators to plan strategically to adapt and integrate (Albers, 2005).

However, even with the long-term visioning and the willingness to adapt, one of the critical questions, whenever these future trends are discussed, concerns the long-term viability of the field itself. Clearly this viability concern is real. One need only examine the membership of the STC to see a significant downtrend since the beginning of Web 2.0. Now holding steady at approximately 6000 members (STC, 2014), STC’s membership has been impacted by the global recession as well as the issues mentioned previously. An additional explanation for this downtrend is outsourcing, which seems to be the result of economics but perhaps equally important is the field of “technical communication is as yet either not visible or not valued” (Courant Rife, 2007, p. 228–229). This issue of visibility and value comes up over and over again, particularly during discussions about products and processes, which is one of the driving reasons for this research.

On the Society for Technical Communication’s Web page, technical communication is defined as “a broad field and includes any form of communication that exhibits one or more of the following characteristics:

## Technical Communication Products and Processes

- Communicating *about technical or specialized topics*, such as computer applications, medical procedures, or environmental regulations.
- Communicating *by using technology*, such as web pages, help files, or social media sites.
- Providing *instructions about how to do something*, regardless of how technical the task is or even if technology is used to create or distribute that communication.

According to the STC, the value that technical communicators deliver is twofold: They make information more useable and accessible to those who need that information, and in doing so, they advance the goals of the companies or organizations that employ them” (<http://www.stc.org/about-stc/the-profession-all-about-technical-communication/defining-tc>).

This definition (as many of its prior versions over the years) focuses on the products (vehicles or means) of technical communication and the processes technical communicators use to envision and create those products. Early in the introduction to *Digital Literacy for Technical Communication: 21<sup>st</sup> Century Theory and Practice*, Spilka (2011) responds to concerns raised by Myers (2009) in her article “Adapt or Die: Technical Communicator of the Twenty-First Century” by saying “technical communicators need to take stock, now, of what recent changes in work contexts mean for their work, and then make a decision” (p.3). One of the goals of this special issue is to examine what some of the technical communication managers in this digital age think about those work contexts. One way toward understanding technical communicators in the 21st-century is to examine companies’ understanding of what technical communicators produce and the processes involved in that production.

Accordingly, this article assesses the attitudes of technical communication managers at several prominent companies toward the products and processes they oversee. It is part of a special issue of *Technical Communication* that includes companion articles addressing this group of managers thoughts regarding technical communicators’ Identities and Relationships (Baehr, 2015) and their Education and Training (Kimball, 2015b).

I begin the article by summarizing the study’s methodology. Then, to give a baseline of comparison,

I outline how technical communication products and processes have been defined and described in the field’s literature over the past decade, with a specific focus on key tensions or questions that have emerged.

This groundwork having been established, I examine how our participants responded to the following basic questions posed in the two rounds of surveys:

- What do you see as the primary products of technical communication in your organization—specifically, what kinds of documentation or information products, and more broadly, what kind of value to the organization?
- What processes do you follow to provide these products?
- Where does or should technical communication happen in product development cycles?

I then examine the clarifications and expansions that emerged from our panel of experts during the interview portions of our study. A final section summarizes, contextualizes, and represents what impact the data gathered might have for the future of the field.

### Summary of Methods

For a full description of the methodology for the entire study, please refer to the special issue introduction (Kimball, 2015a). But in short, we conducted a modified Delphi study, which is a methodology intended to assess the ideas and opinions of a group of experts by asking them to address similar questions through several rounds of surveys, interviews, and focus groups. Specifically, we conducted four rounds of data collection:

- Round 1: survey
- Round 2: survey
- Round 3: face-to-face focus group
- Round 4: synchronous online focus group

The population for the study was small, defined by the membership of the STC’s Advisory Council. Nonetheless, the iterative framework provided by a Delphi study generated a large amount of data for analysis and comparison, including survey data, written comments, textual transcripts, and observational notes.



Given the large and multivariate nature of the data, we employed text mining and visualization techniques extensively to code and identify patterns and contradictions in the attitudes expressed by the participants. Statistical information graphics including bubble graphs, sparkline graphs, and radar charts were created using content analysis themes, categories, and relationships. These graphics provided us with a more objective perspective than simple subjective interpretation would allow, and arguably greater reliability than manual content analysis, which relies on subjectively derived codes to begin with. This analysis revealed interesting, though inevitably provisional and exploratory findings.

### Survey Responses: Rounds 1 and 2

As discussed earlier, recent scholarship in technical communication has often turned to the next big thing, such as the shift from document to content management. But do companies see technical communicators in these innovative terms, or in some

more traditional role? To answer this question, we asked our group of managers and team leaders simply to indicate all of the kinds of products their companies' technical communicators created.

### Products

The list of products (see Figure 1) was adapted from the list on TechWhirl's Web site (<http://techwhirl.com/what-is-technical-communications/>). According to our participants, their organizations still see technical writers as focusing primarily on traditional procedural documentation, with the top five products all falling into that general category. Products such as Web sites, training simulations, and even training materials were less common. However, other products associated with the tasks aligned with the definition of what technical communicators do (those who "research and create information about technical processes or products directed to a targeted audience through various forms of media"), such as "how-to videos," have begun to gain ground as critical products.

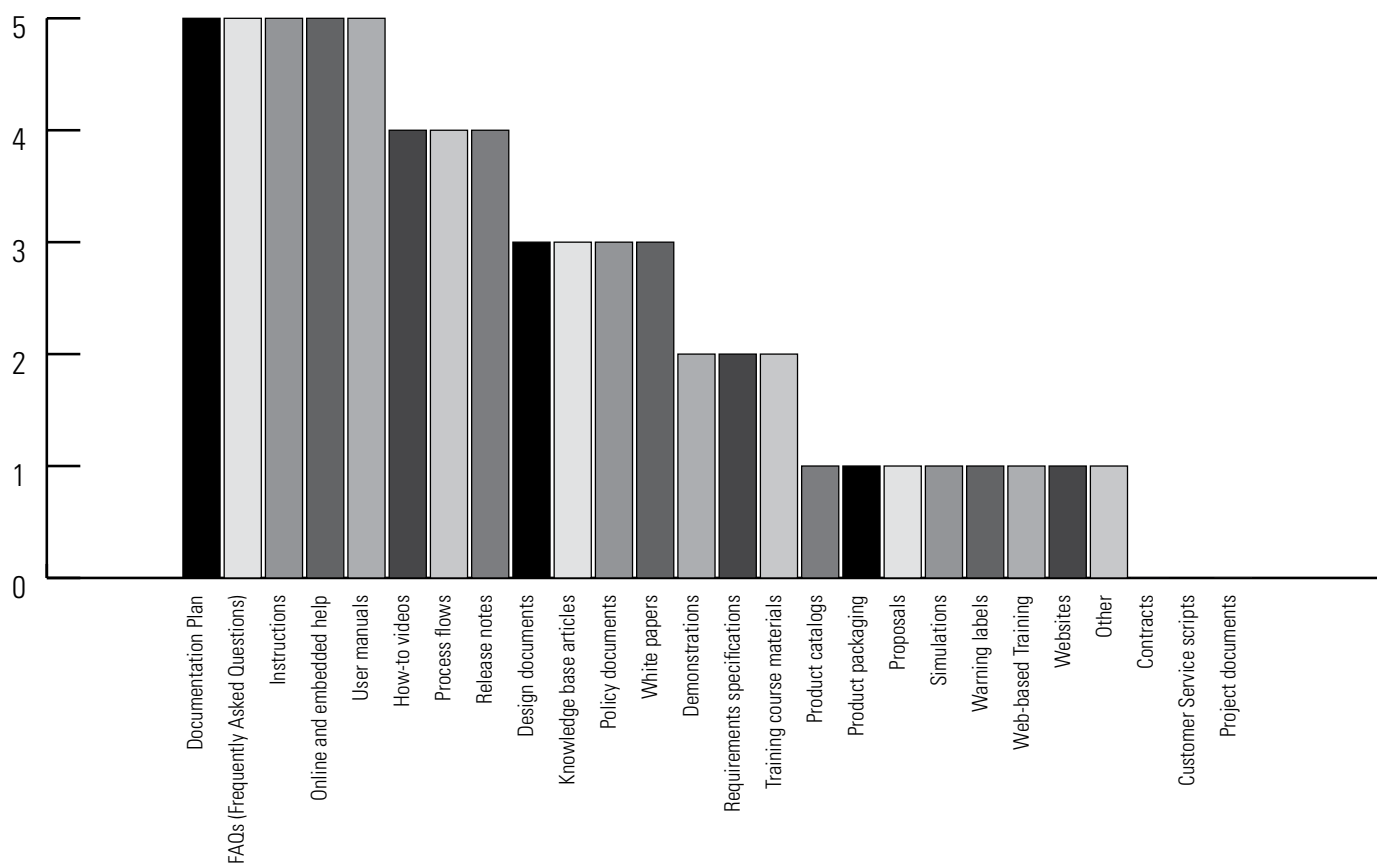


Figure 1. The Products Technical Communicators Produce

## Technical Communication Products and Processes

**How-to Videos.** Four of our five participants cited how-to-videos as a common product for their companies' technical communicators. We were excited to see this high ranking, recognizing the growing ubiquity of the how-to video and the possibilities for technical communicators contributing their expertise in this new medium. Including video as part of the technical communicator's job is not new; Dicks (2011) noted that this task has been one of several gaining significance as the nature of work changes. However, its prominence among our participants suggested that we should follow up on this result. We did so in Round 2, asking the following open questions:

1. While "how-to" videos clearly fall under the larger category of instructional products, the medium is not often one used by technical communicators. If your technical communicators are producing "how-to" videos or you think they might be doing so in the near future, would you discuss who else in your organization, if anyone, works on these products?
2. Have you hired technical communicators with video production skills in mind?
3. If not, have you offered additional training or sent your technical communicators to workshops/classes?

The responses suggested that while companies are at least beginning to shift from print to video instructions as an essential task for delivering information to customers, this product is not always tasked to technical communicators. In fact, participants were split 50/50 on the question: two said their companies do not task technical communicators to handle this task, and two said their companies are moving that direction. The first two suggested that their companies tasked "other departments" such as human resources, "product evangelist," "sales/marketing," or training specialists to create videos, rather than technical communicators. The responses of the two whose companies did use technical communicators to create videos suggested that the shift to video was just beginning:

"Some of our TCers create video material, and that community is growing, because we focus on expanding the skills and capabilities of our TCers with in-house education, etc. We don't hire for those specific skills, nor do we send our TCers outside for workshops/class at this time."

"Given the new training media (online videos), the world is definitely moving towards video training. We have not hired Technical Writers with video production skillset in mind. However, we have provided basic training to them to produce photo/video products."

Yet even one of these participants seemed to see video instructions as something all groups would do, rather than something technical communicators could specialize in:

"Outside of TC deliverables, video is a very popular format, so nearly anyone creating content—including our technical community, our sales enablement community, etc.—is creating video content. We have a corporate level standards, guidelines, best practices, and enablement for creating video."

These results highlight several important issues. First, we are at a place where practice may be leading research. As Poe Alexander recently pointed out, "we are only beginning to theorize about usable design practices for videos, including the nature of the task performed" (2013, p. 238–239).

Second, the assignment of this important task to "sales/marketing" or HR departments may be a lost opportunity for companies and for technical communicators, who ideally have valuable expertise in usability—a value perhaps less prominent in these other fields. If this task is not seen as one that belongs to technical communicators, we may be losing an important role in the company, one very much linked to several of the key tasks included in our self-definition, but most explicitly linked to "Providing *instructions about how to do something*, regardless of how technical the task is or even if technology is used to create or distribute that communication" (STC definition).

**White Papers and Policy Documents.** We also found the relative prominence of white papers and policy documents as important products interesting, having the same prominence as knowledge based articles. This result led us to ask a follow-up question in Round 2: "Are policy documents and white papers genres that most technical communicators you hire feel comfortable writing? If not, do you hire technical communicators with a specific skill set for these

products? If so, what would that skill set include?” We received the following responses:

“Our TCers feel comfortable writing any of kind of technical documentation—including policies and white papers.”

“Most tech writers still see P&P as a specialty field. Structurally, it is very similar to traditional forms of TC, so this shouldn't be an issue.”

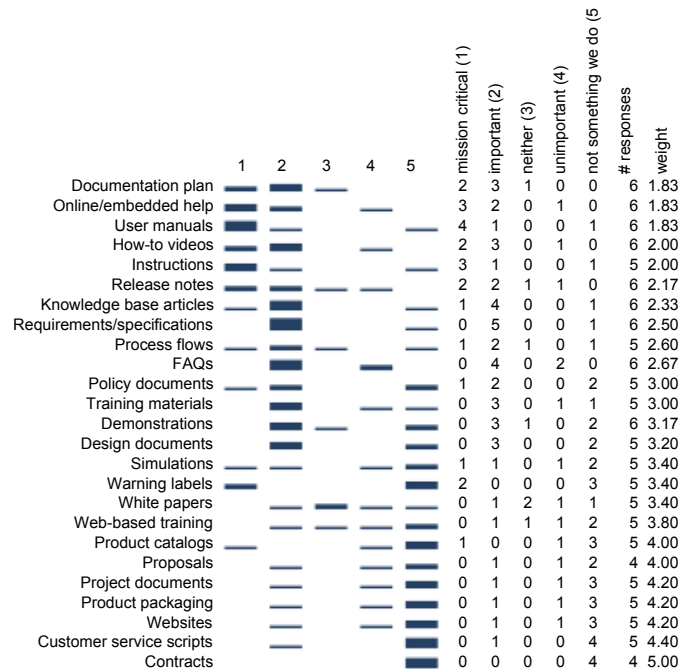
“We have a small hand in policy documentation. Content is written by legal and published by us.”

“Policy documents written from scratch is where the Technical [sic] Writers add most value; then regular upkeep can be done by document subject matter experts. White papers are typically written by Engineering Subject matter experts with a final edit by technical writers.”

In the four companies that responded, policy documents and white papers seem to have become a part of the role technical communicators play. More to the point, clearly in one company, by writing these documents, technical communicators are “add[ing] value.” In other companies, these genres are seen as within the comfort zone of technical communicators or similar in nature to what is considered “traditional forms.” These responses support claims by Giordano (2011, para. 6) and others who say that “more often than not we're [technical communicators] asked to create policies, troubleshoots FAQs, ... white papers ... and a host of other ‘information products’ as a way of dealing with a more complex workplace.” In essence, to add value, the technical communicators need to become “versatilists,” as described by Allen *et al.* (2008, p. 3). In so doing, technical communicators can “function as proactive partners who are skilled in leveraging information” (Allen *et al.* 2008, p. 3).

### Importance of the Products

In addition to asking what products these companies saw as important outputs for technical communicators, we asked participants to rank the importance of those products, from “mission critical” to “not something we do” (see Figure 2). We weighted the most critical as “1” and least critical (not something we do) as “5.”



**Figure 2. The Technical Information Products that Are Most Important for the Company's Mission**

As the sparklines in figure 2 suggest, traditional products like user manuals, planning documents, instructions, requirements/specifications, and reference materials (knowledge base articles and FAQs) rise to the top of the list as “important” or “mission critical” products. Again, we see videos also recognized as “important” or “mission critical” products, which is especially interesting even as we learn that they are not always the purview of technical communicators.

One response that did not come from these questions, but from the set concerning identity is critical to raise here. In answering a question about the relationship between usability testing and technical communication, one participant said, “Content is a product like the software, hardware, etc. that our companies create.” Considering “content” as a product helps to explain some of the transformations that are occurring. In its most elemental form, what Shank (2008) called “microcontent,” writers are no longer producing any of the products listed above, at least not in their final form from start to finish. Rather, they are producing parts of those products that later will be aggregated in various ways to create a number of larger products.

## Technical Communication Products and Processes

### Processes

Another important question in our field concerns the role of technical communicators in the workflow of their companies. Focusing on a primary work product for technical communicators—documentation—most researchers and theorists have argued for technical communicators to be involved actively in all stages of the process with a primary role as a “user advocate” (Carroll & Meij, 1998; Redish, 2010, p. 196; Spinuzzi, 2000). Yet, there is evidence that, even with decades of research to support this role, many companies do not fully integrate their technical communicators or permit them to exercise this role as user advocate by having contact with users (Virtaluoto, 2014). Thus it was critical that we not only learned about the products being produced but also about the processes involving technical communicators to produce them. As a result, we began Round 1 with some questions about those processes. By focusing on two of their most important products, we asked our participants to

1. Describe the processes involved. Discuss how an information product would be created from start to finish—Who would initiate the task?
2. How would that task be communicated to the individual(s) or teams involved? Who would be on those teams?

Four participants provided insight about these processes, and while considerable differences exist among the companies, each company involves technical communicators actively in product development. Each seems to imply that there is, at the most basic level, a team concept, validating the importance of teams (see Redish, 2010; Spilka, 2011). And, in at least one company, management seems to play a direct role:

“Our key deliverables are user manuals and embedded and online help. At the start of each release, the writers and managers evaluate the requirements and new features and determine the impact on the documentation. To gain buy-in from the cross-functional team, we create a Documentation Plan for review and approval. We then start testing and documenting the features as they are developed. Docs go through one or two technical reviews. We recently started

doing iterative development where ID is part of each scrum team and documenting features for each iteration.”

“Engineering initiates a change to process or product. They will involve a technical writer to help create change documentation as well as create content mark-ups. The change docket and content mark-ups are reviewed, approved and implemented.”

“We use an Agile Scrum methodology for product development which includes the development and delivery of all customer content. The Information Engineers are part of the core product team. They work with the Information Architect to develop both the high-level content roadmap and the specific content plan for each release. Information Engineers engage with their scrum teams during all sprints, attend daily stand-up meetings, End of Sprint and Scrum of Scrum meetings. The information Architect and the Information Engineers work together to develop the epics, stories, and tasks for each sprint. Content is developed, reviewed, and delivered according to the sprint schedule.”

“The writers learn about upcoming features along with everyone else on the product teams. They start with a PRD --> learn about the business logic from product management --> begin writing fairly early in the dev cycle --> firm up writing as feature hardens --> edit writing against feature in test environment --> send out for review by eng and product management --> edit --> send out for localization --> publish with feature release --> publish in rest of languages. The task is usually initiated by the writer, but product management sometimes has special requests. The request is usually made face to face followed by a formal request via our bug tool.”

Besides the ubiquity of teams in all companies, however described (“core product, cross-functional, product), another interesting dimension of the responses was the description of the tasks. The specific language of Agile/Scrum notwithstanding (for example, epics, stories, sprints), a number of the participants indicated that editing remains important, highlighting

“reviews, mark-ups, editing.” The role of editor makes much sense as we shift from writer to director, from document producer to content experience provider.

### Analytical Approaches

The next question dealt with analytical approaches used by technical communicators. We were interested to learn how technical communicators gathered the data necessary to create usable products (see Table 1).

**Table 1. Analytical Approaches**

Answer	Count	%
Interviews with users or customers	4	67%
Hands on testing	3	50%
User Surveys	3	50%
Focus groups	3	50%
Analysis of technical support or customer support data	3	50%
Search of marketing literature and development specifications	2	33%
Usability analysis and testing	2	33%
Field testing (6)	1	17%
Other	0	0%

The results are not surprising, particularly the use of focus groups and user surveys. Recent studies have shown that a primary means of gathering information on usability and accuracy of content comes from involving users through such vehicles as comment forms (Carliner et al., 2014). But two-thirds of the participants said that technical communicators used “interviews with users and customers.” This finding is significant, particularly the specific focus on creating or valuing of a direct line of communication between the actual user and the technical communicator whose role is supposed to be a “user advocate.”

The use of interviews is also significant to the educational side of the field. We asked whether or not the technical communicators were trained to conduct interviews:

In the question “Of the following analytical approaches, which ones do technical communicators in your organization use?” the range of analytical approaches to data gathering was broad, with every

category selected (see the graph below). However, interviews seemed most valued. What special training, if do you provide, support, or expect of technical communicators using these interview methods?

The answers ranged broadly, in that until being asked the question, at least one company assumed that all technical communicators, perhaps everyone, would have solid interviewing skills.

“We use all of these methods in our organization, some more than others, depending on the product team. We provide in-house skill and capability development, as well as enablement assets, to ensure our technical communicators can perform these methods and do so consistently and with high-quality results.”

“We have many internal surveys that provide a good model. I am not aware of any training for how to do interviews. Field testing is handled separately by Engineering/QA: it should be part of TC.”

“We don’t provide any specialized training in these areas.”

“We lack any formal/ informal training. It is assumed the everyone can interview (basic flaw in our assumption).”

For those companies that recognized the need for special training, some in-house training occurred, but in others, technical communicators had to rely on “internal surveys.” Only one indicated that they “provide in-house skill and capability development, as well as enablement assets, to ensure [their] technical communicators can perform these methods and do so consistently and with high-quality results.”

We were also interested to learn about the roles that “customers” play, particularly given a number of concerns about how technical communicators may begin to play less and less a role as the role of customer and direct feedback increases. We asked about the role of user-generated content in their company’s documentation cycle. While the majority of our participants indicated that user-generated content was not important, two (or one-third) indicated it is, and one even went so far as to say that “customer-generated



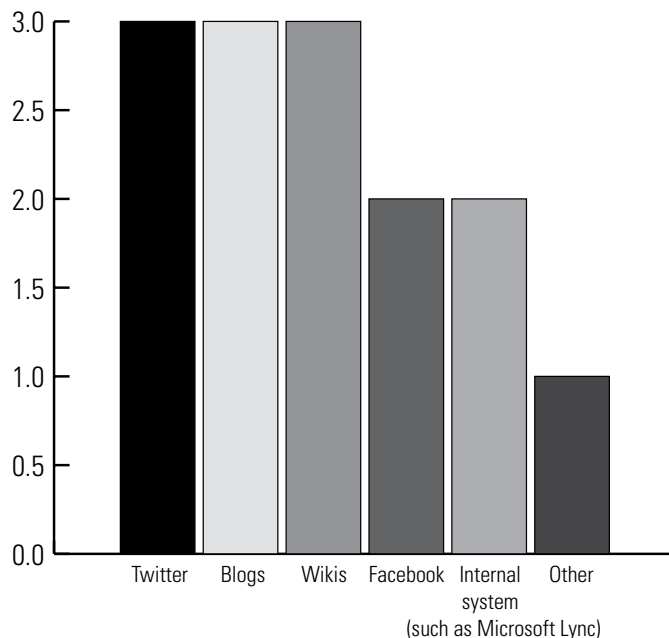
## Technical Communication Products and Processes

content is playing a larger and larger role in our content cycles.” Given that a number of our participants represented large constituencies, this response seems in line with the data gathered by Carliner *et al.*, who suggest “that technical communication groups with 26 to 50 staff are more likely to use Reader’s Comment Forms than groups of other sizes” (2014, p. 159). At least some of these same groups, once they gather that user-generated feedback, use it more directly and/or seek further input via interviews or other forms of direct contact.

### Stakeholders

These responses about customers point to a perennial problem: Whom do we serve? How? Schriver argued that “consumers and citizens” are “the largest of the potential stakeholder groups” (2002, p. 124). Given the responses from the communication managers about working in teams, which would indicate an inherent belief in collaboration (Redish, 2010), the focus on identifying and articulating a direct line of inquiry between technical communicators and users, and individuals’ increasing expectation to have some input in the tools and apps they use, the fact that only one participant indicated involving customers in the content cycles is odd. This response, along with the next question, which focused on the role of social media in the development cycle, indicates that perhaps changes, that Ames and Jenson (2003) indicated were necessary by developing a value continuum, are still to come (see Figure 3).

These key tools, particularly wikis and blogs, along with other interactive tools for customer/user feedback have yet to gain full use, and few of the participants indicated a deep integration of these tools into the technical communicator’s work. In a recent article, Longo asked “how can technical communicators use these new devices and the social media they support to open lines of communication for both cross-community knowledge-making and collaborative design?” (2014, p. 23). Clearly we are not yet at a place where we have the answers, but there are some who argue that we can build on our “soft” skills and understanding of both content and usability to work as either “community managers” or online help forum manager (Firth, 2014; Gentle, 2009). In these roles, even though there are some who argue that they work to undermine the profession (Carliner, 2012), technical communicators can help



**Figure 3. Social Media Tools**

shape input so that it adds the most value, taking what may be offered as guidelines and transforming or translating this information to clearer, more usable instructions in what Swarts claims “takes advantage of the forum as a theater of proof” (2015, p. 176). While we did not see nearly as much evidence of this kind of work being taken on, there is evidence that these tools are finding their way into day-to-day practices of at least 50 percent of the participants and that one company is working to fully integrate “customers [as] ... partners and key contributors in the content development process” indicates movement in this direction.

### Technical Communicators and the Design Process

Perhaps the most significant question we asked in Round 2 focused on what seemed to be a contradiction between the emphasis on traditional products (such as FAQs and instructions) and a greater involvement of technical communicators in the overall design process:

In a number of places, participants commented that Technical Communication is moving toward a greater involvement in design—interface design, product design, etc. Yet most of the top-ranked products (planning docs, FAQs, instructions) are pretty traditional. Is this a contradiction? If so, what is its significance? If not, how is design playing a larger role in these traditional products?

This set of responses set up perhaps the largest contrast in overall perspectives. Half of the participants indicated that it was a contradiction: “it is the same difference as it is between what the heart wants and what the mind needs.” One way to parse this comment is to take “mind” as referring to management, which makes sense given another response indicating that “management still grades or evaluates TC writers based on the number of words written.” Changing that metric is critical. When management sees technical communicators as integrated members of teams with a diversity of skills (as “versatilists”), as capable of contributing in ways other than “the number of words written,” then technical communicators have a much more viable future as the other two participants indicated, focusing on the shift to a “more design-oriented approach,” with “writer[s] who [are] part of the development cycle from Day 1.”

“We are definitely focused on moving content from a more development-oriented practice within our company to a more design-oriented discipline. We do not believe that “traditional deliverables” are necessarily a contradiction to that move. Rather, the client and user understanding that comes from a more design-oriented approach, and the better user experience that should result, drives the determination of the content deliverables necessary to support user goals. Sometimes, these are “more traditional” deliverables.”

“Yes, it is a contradiction. In many instances, management still grades or evaluates TC writers based on the number of words written, rather than hours saved through new efficiencies. Many of the benefits of UI and product design experience are “soft” and difficult to measure with computer metrics. Human analysis from management (often in short supply) is an on-going problem.”

“I don’t think that writers will ever play a huge role in design. What is changing, however, is that they are becoming more deeply integrated in the development teams. The model of the passive writer waiting for information is being discarded in favor of a writer who is part of the development cycle from Day 1. That inevitably means they will have some, but probably not a lot, of input on

the product. (Usually, that is in the form of UI terminology and workflow, but the overall design of a feature or product.)”

“Yes, this is a contradiction. IT is the same difference as it is between what the heart wants and what the mind needs. While in theory we would like technical [sic] writers to be involved in design; most likely we are bound to utilizing them in traditional means due to the real world constraints (hand-off inefficiency from subject matter experts to technical writers, budgets, there is no one else to do traditional technical writing).”

This question, perhaps more than any other, points out an issue that is at the core of our field’s dilemma. We believe and argue that technical communicators are truly usability focused and design oriented. But, in the end, many companies do not “see” technical communicators as designers because of “real world constraints.” Others feel constrained by their assessment vehicles such as evaluation based on the number of words produced. The positive side is the fact that some companies are more fully integrating technical communicators into the design teams, and most others, at least, understand, in theory, that they ought to do so.

### Interview Responses: Rounds 3 and 4

To further supplement the data we gathered in the online surveys and to address the issues or questions still remaining, we met with the participants once in person (Round 3) and also spoke with them in a Web conference format (Round 4). During those conversations, many of the points that had already been discussed were reinforced or further clarified. However, a few points emerged that had only been hinted at or discussed tangentially: (1) how to re-think the development cycle to offer more opportunity to technical communicators and/or to take better advantage of their skill set; (2) how to re-think a position that has heretofore almost always been linked to the act of writing or creating documents to one that is more focused on creating content that is considered an “actor, a player in the story.” This kind of shift does not do away with writing, but it places the act of writing in a subordinate role to what one might call the act of *directing*.

## Technical Communication Products and Processes

### The Development Cycle

Another important point, which emerged during Round 4, concerns several forces at work leading to a compression of the development cycle. Several of our participants focused on the impact of the shortened development cycle (emphasis mine):

“One of the things that I say in our community is, get on the boat or be irrelevant. And I really think that the way we are creating content today, the way that we’re thinking about content and how it fits into *the overall product management, design, development, delivery, process, is changing by the minute, and as you just said, it’s smaller, shorter development cycles and so on.* And if we stay where we are, we are going to be irrelevant. That will be bad. Our customers would suffer. So we’re definitely feeling the force of that idea of change. Some of us are embracing it, and some of us not so much.”

“Two to three years back, we would be in the same boat that [name omitted] had described, where we were being marginalized to the last step in the process, and then we had to really work our way upstream and show the benefits. *And it was, the whole point of getting to market faster is what helped us get upstream.* Currently, though, we are struggling. So we’ve swung the pendulum on the other end, and so now there’s inefficiencies based in us being in every single meeting, because that’s not efficient either... I think as we squeeze in more and more productivity in this particular millennium, I’ve seen there’s a lot of emphasis on doing more with less.”

As is often the case when change occurs rapidly, people are often asked to “do more with less,” and sometimes the pendulum swings too far in one direction, building in “inefficiencies,” such as mentioned with technical communicators having to be “in every single meeting.” Our technical communication managers are trying different options to address these inefficiencies.

One way that companies are addressing the compressed development cycle is to use a variety of team-oriented strategies, such as Agile Scrum. One of the participants talked at length about this strategy:

“We use an Agile Scrum methodology for product development which includes the development and delivery of all customer content. The Information Engineers are part of the core product team. They work with the Information Architect to develop both the high-level content roadmap and the specific content plan for each release. Information Engineers engage with their scrum teams during all sprints, attend daily stand-up meetings, End of Sprint and Scrum of Scrum meetings. The information Architect and the Information Engineers work together to develop the epics, stories, and tasks for each sprint. Content is developed, reviewed, and delivered according to the sprint schedule.”

The shift in nomenclature for TC positions from technical communicators to “information engineers” and “information architects” is not new (see, for example, Redish, 2002; Spilka, 2002, p. 4), but for a long while these changes have been growing at the fringes of our field. Still, such naming is not fully taking hold. Perhaps it is because, as Baehr points out in his discussion of our field’s identities, “many technical communicators are considered to be hybrids of sorts” (2015 p. 105).

However, whether or not the names change, our managers have made efforts to adapt through such strategies as Agile. While only one of the other participants explains that their company has successfully adopted it, at least one other company had attempted it: “Our company has tried Agile/Scrum with limited success.” Clearly these new strategies can add value in terms of creating more effective teams and helping to compress the development cycle, but it also seems as if its implementation is linked to the culture of the organization, and some cultures tend to support Agile better than others. Part of the issue is that this strategy seems to flatten the structure and blur boundaries between roles: “We are starting to adopt the Agile/Scrum approach. It is tough to establish the roles and responsibilities as the lines between engineering and technical writers are getting blurred by the day.”

### Shifting from Writing to Directing

The lack of visibility, the shrinking development cycle, and the problem with management who focus almost exclusively on a quantitative measure (for example, counting the number of words produced or reduced) that is virtually unrelated to the value of the product

or the product's value to the customer have all plagued technical communicators and, along with the perceived advantages of such managerial decisions as "outsourcing" have led resulted in a shrinking of our field and a lowering of morale. That said, many of the participants we spoke to have not thrown in the towel. Instead they are working to revision the field by finding new ways to perceive and describe the work technical communicators do and the value technical communicators add.

"This is more about, 'How do I solve this business problem?' So the business use case has become really the thing that we're trying to identify as technical communicators. And I know at [company name] we look a lot at trends in customer support issues. We want to see where people are having difficulty with our product, and those then will bubble up and become the high-priority use cases that we tackle with the content. Those are the things, the problems we want to solve for our customers so they don't have to call support."

"They're very, they have twenty, thirty years of writing about the product, and this isn't about the product. It's about the customer's business, and the product is an actor, is a player in the overall story, and so it's how to apply that product in the context of the customer actually getting some business value. And often the documentation, if you will, is not about the product, it's about 'How do I think about my business in a different way?'"

Technical communication managers are focusing more on the notion of "business problem[s]," and, as a result, are looking more closely at "customer support issues." They are also thinking more broadly about the notion of what is being produced, thinking not so much about the actual "product" qua "product," but about the product as "actor." If the product is an actor, then the person composing, moving, adapting that product is now more of a "director" than a writer. The role of technical communicator as "director" fits more readily with the way the field is moving, especially as we increase the amount of time spent on creating videos. As one of the participants said when asked about barriers, contributions and opportunities for technical communicators: "Tech communicators have created 'word pictures' for centuries. All we have to

do is transmute 'text only' word pictures into actual graphics and videos." Such work is the responsibility of directors who, in the words of another participant, "bring information to its useful life." Such work is in line with two responses we received when we asked "In the past five years, how has the role of technical communicators in your organization changed?" One participant said technical communicators have moved "from a passive role to an active role" while another said they have moved "from solely focusing on product documentation to leading a coordinated approach to integrated content." Finally, such a role accounts for the following comment: "I mean, it's very much less 'Type your name in the name field' and much more 'How do I determine the perception of customers, the perception of my brand by my customers'." Such roles fit well with shifting the primary focus from writing to directing, where technical communicators can more fully achieve the goal of creating a content experience for users.

### Creating a Content Experience

Over the past decade, one shift in the discussion of product and process that continues to gain prominence is the emphasis on *content as experience*. In the introduction to one of the first books focusing on this notion of content, Schriver (2003) outlines a key theme: "information designers need to be more critical about the nature of the content they present... Without detailed information about their stakeholders' expectations and needs for content, organizations can produce artifacts that fail, even though they look nice and read well" (pp. x–xi). Such is the work of our technical communicators.

In some ways, Schriver's point is similar to the one being made by Firth (2014) and others who believe technical communicators have a strong role as community managers who serve as "advocates" who create "experiences" based on content, as described below.

*Because content is the experience* [italics mine]. Especially in the last five years, functionality in my view is totally taking a backseat to the communication that has to happen. And that's not just the text communication, that's a video communication, that's an interaction communication that's a visual communication. Right? And it's all 5,000,000% communication. So that is so critical to the client experience and

## Technical Communication Products and Processes

when we look at something even more content oriented like marketing and we start thinking wow, marketing is responsible for discover, evaluate, buy in our little process, excellent, but they want advocates, which is like on another hand. Well after you buy, you never go back to marketing content. What's the gap between buy and advocate? I keep telling our marketing people, the gap between buy and advocate is technical content and product experience. That is the gap. What is turning your buyers into advocates for our product? Me.

There are a number of ways to create advocates and bridge the “gap between buy and advocate. One of our participants was pushing vigorously for the line to the users to be bridged by “moving [their] content from [their] old CMS to a wiki.” In doing so, they focus on ridding the “experience” of “redundant content” and making it “lean.”

“There’s a lot of obsolete content. So as part of this transformation of the content we’re applying lean content best practices to make it much more useful and usable for our customers.”

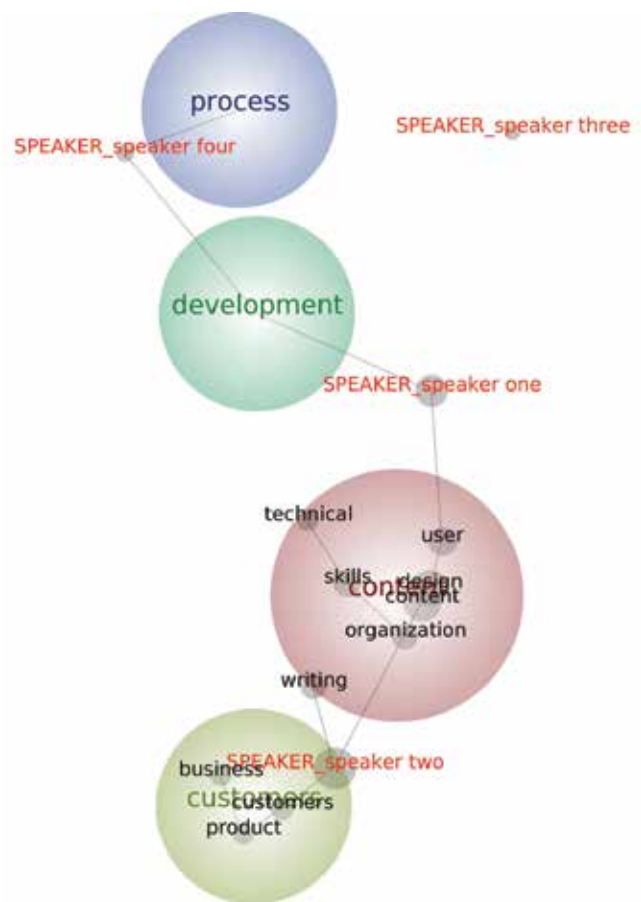
Thus, the focus returns to the user and the customer.

### Process and Product: A Visual Perspective

As Kimball (2015a) describes in the introduction to this special issue (p.94), one of the tools we used was Leximancer, which “automatically analyses ... text documents to identify the high level concepts ..., delivering the key ideas and actionable insights ...with powerful interactive visualisations” (Leximancer). One such exploratory visualization contains the text from the questions in rounds 3 and 4 (see Figure 4). As described in the introduction to the special issue, Leximancer processes natural language texts to identify significant concepts, then groups the concepts into more- or less-coherent themes, which are heat-mapped to correspond to a connectivity rating. Please note that the size of the circle for each theme carries no significance—the software simply sizes the theme circles big enough to make room for the concepts they contain. However, the distance between concepts is significant, as is the number and length of paths necessary to get from one concept to another. Closely related concepts are visualized as close to one another on direct paths, while

distantly related concepts are visualized as far apart, linked by multiple steps. The theme bubbles are also heat mapped for their relative coherence or connectivity, in this order:

- Content
- Process
- Customers
- Development



**Figure 4. Responses to Products and Processes Question in Round 4**

As this diagram shows, the four speakers all had different “centers of gravity.” But two of them (speakers one and two) seemed to be focusing directly on connecting content, design, development, and the role of technical communicators. However, “Technical” and “Writing” are on the fringes of the content theme; it may be a way that managers evaluate technical communicators, but it is not the primary task for technical communicators any longer. Yes, technical



communicators must write to create new content, but in many cases, the majority of their time will be spent directing—managing and editing content to create a better, more satisfying customer experience.

Clearly, adding value by tackling key tasks related to policies and adding participation in composing white papers will keep a focus on the value of traditional “writing.” But the skills necessary to direct newer media—whether in learning or enhancing interview skills and working to polish or develop the skills necessary to create tutorial, how-to videos—will play an increasing role in technical communication. As Mette Nyberg stated recently, “In theory, the Writer’s Toolbox should not have any reference to ‘the product’... . No matter the nature of the product, the technical communicator can rely on the skill set to complete the task of developing *contents for the ‘product’*” (2013, p. 66, emphasis mine).

## Conclusion

This research has helped to further explain the relationship between what technical communicators produce and how these products function in situating or framing their producers in relation to other subfields/related disciplines, such as UX design, information design, knowledge management, usability, and information architecture.

As has been evident for well over a decade and, more realistically, since the mid-1990s when the age of computers started to create more rapid change in our discipline along with the rest of the world, technical communicators have been facing an identity crisis—trying to decide what defines them. Is it products (what they create)? Processes (what they do)? Where they fit in the overall scheme of the development cycle—the process of bringing products to market? In the last few years, economic forces have led to a shortening of the development cycle. That kind of compression has consequences for everyone in the cycle, but at stake for technical communicators is whether or not they are able to remain relevant. One participant’s point struck home:

“the folks who do have those skills are somewhat, what’s the word I want, marginalized, because they belong to, quote unquote, IT or the technical writing group. And design in our organization today has taken a much bigger role, has a lot more power, authority, and so on, and so there’s a

lot of marginalization of content because it’s not considered a design discipline.”

Or as another participant put it,

“You cannot be the long pole in the tent, and if you don’t want to be the long pole in the tent, you have to be walking along with them so that you’re not the last person out.”

If content is supposed to be king, and even more to the point, given the fact the participants are beginning to rename themselves and those who work for them as “content experience strategist[s],” then a “marginalization of content” becomes a point that must be addressed. Most of the participants recognized this issue as valid, and what was refreshing was rather than deny a problem existed, they were working to reframe the discussion. Rather than acquiesce to a marginalization of content, they argued the importance of working within their companies to “ensure that content has high visibility ... which means that it needs to be a focus of design as well, and since those skills are not there, we need to get content people into the design role in a more conscious way.”

To assist in this process, several managers argued along the lines of creating a special category of content, which they call “high-value content,” which is “content that’s really focused on helping customers achieve a business goal or helping users achieve a technical goal that is really driving their business and giving them business results.” This discussion of value and its separation from physical products is not new. In 2002, Faber and Johnson-Eilola said, “We must find ways to leverage our knowledge and build new knowledge to create and add value in a business culture that is increasingly agnostic to physical products” (p. 141).

A third response focused on a slightly different role—that of being “another pair of eyes” focused on the content, and then, as part of the team, they are present to provide a “sanity check.” As one participant said,

“We have a much wider role, which is to review every string message and UI label. We have a UX team, they design it, they’ll implement it, QE test it, and then we go through with sort of a sanity check, I guess it is, just for the end user perspective, asking questions when we think things don’t make sense or

## Technical Communication Products and Processes

terminology's not consistent. I think it's a good thing overall, because it really adds value to the product, the overall look and feel of the product as well as how it works, how you navigate through it, and I think it adds value to the organization as well. Again, it's like another pair of eyes looking at things."

In all of these responses, it is clear that an important strategy is to involve technical writers "or the content contributors, ... more ... in the overall user experience and the design of the documentation, even the design of the product." Regardless of whether the content is seen at the presentational level or not (Kimball, 2015b, p. 140, this issue), it remains clear that the importance of functioning as an intermediary between the content experts and the users is where the value lies.

As one of our participants reflected at the very end of the Web conference, the situation is not necessarily dire. Even if the age of document-based information development may be dead, there are many interesting and potential avenues for technical communicators to pursue.

"I think that most of us are in agreement that the role of the technical communicator has to expand. I believe we have to keep pace with what's happening in the world. Technology and information is just so fluid right now, and so dynamic. I think, in terms of the career path, technical communicators are, are not doing what they did even five years ago. I think they're all being asked to do more and more and to broaden their skill set. And actually, from the career perspective, I think that for a technical communicator, that's kind of exciting. Because I think that one of the things that they can do is, they learn new skills and grow these new skills. They have opportunities for other positions, especially in larger companies like mine. A technical communicator can easily move or, I should say, much more easily move, around the organization because of the skill set that we're able to give them, and it goes well beyond writing."

Because the situation is dynamic and "fluid," it opens up opportunities. As Albers explained very early when discussing problem solving and content analysis, "The potential choices and reasons for making the choice become the dominant factor" (2003, p. 263). His comment has relevance as we consider the potential choices facing technical communicators and managers.

Our field's practitioners and its managers need to embrace the complexity involved and demonstrate how, by editing and directing they can help solve the "business problems" by shaping content into coherent products that meet customers' quickly changing needs. Technical communicators are, after all, the ones who work in the intersection between the content itself and the customers. We can help those customers process the increasing amount of information available in dynamic and constructive ways.

So, to conclude, I'll end with questions one of our participants posed as he pondered this fluidity:

"[T]wo to three years back, we would be in the same boat that [another participant] had described, where we were being marginalized to the last step in the process, and then we had to really work our way upstream and show the benefits. And it was, the whole point of getting to market faster is what helped us get upstream. Currently, though, we are struggling. So we've swung the pendulum on the other end, and so now there's inefficiencies based in us being in every single meeting, because that's not efficient either. So we're trying to achieve that right balance of, when do we get engaged? At what point in time?"

I can't answer this specific question of when each technical communicator should get engaged in the development process, but I am absolutely certain technical communicators need to be much more engaged in the definitional, advocacy, and educational processes surrounding the products and processes related to the work they do. Technical communicators should consider how they can be more involved in gaining (or teaching) video, social media, and interview skills. And they should take to heart the reality that one of the participants outlined in discussing the challenges the field faces: "I don't know whether or not tech communicators will move to a design emphasis, but the products they support certainly will... . These products are simply too complex, especially if we write to help the user 'achieve goals' rather than tell them about the UI." By more clearly adopting the roles of director and editor, they can almost bypass the issue of whether or not they are "designers." Instead they become the user advocates leaders in the field such as Redish have argued for decades that technical communicators should be (2010, p. 196).

In closing, whenever I face questions of this import, I often return to an essay I read the first year I taught, Annie Dillard's "Seeing" (1973). In it she says, "I've been thinking about seeing. There are lots of things to see, unwrapped gifts and free surprises. The world is fairly studded and strewn with pennies cast broadside from a generous hand... [and] if you cultivate a healthy poverty and simplicity, so that finding a penny will literally make your day, then, since the world is in fact planted in pennies, you have with your poverty bought a lifetime of days." (p. 19). In this instance, the pennies the world of technical communicators is strewn with are pennies of content; and content is what needs to be cultivated. The tools we choose are important; the education we seek and advocate for will help our crop grow. Most important will be our attitude, which needs to be rooted in versatility.

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# Training and Education: Technical Communication Managers Speak Out

Miles A. Kimball

## Abstract

**Purpose:** This article describes a study conducted among technical communication managers. As one part of a special issue reporting on the entire study, this particular article focuses on the participants' responses to questions about education and training of technical communicators, including credentialing, skills and competencies, the gap between school and work, professional development, and the pattern of technical communication careers in terms of professional growth.

**Method:** This study used a modified Delphi method. To gather data, we used two sets of survey questions and two structured interviews.

**Results:** Participants valued basic technical writing skills and traditional credentialing (such as college degrees in TPC) over technical degrees or certifications. Yet they also advised that academic programs push students to develop strategic thinking and other professional skills and confidence.

**Conclusion:** Practitioners will need both basic skills and strategic skills to advance in their careers.

**Keywords:** education, training, technical communication

## Practitioner's Takeaway

- Technical communication managers value traditional degrees in technical and professional communication.
- They also value skills beyond basic technical writing abilities, including general business skills, content-area skills, and iterative project management skills.
- They felt that technical communicators were often distant from corporate strategies for satisfying customer needs.
- They observed that the technical communication career track has a "glass ceiling," requiring technical communicators eventually to leave the profession behind in order to advance.
- They encouraged more technical communicators to get involved in professional development efforts.



## Training and Education in Technical Communication

### Introduction

Training and education for professional technical communicators have (naturally) long been concerns for the academics training new practitioners. Many teacher-scholars have focused on these concerns, giving advice for what skills, competencies, or literacies are most important for the academy to teach novices (for often-cited examples, see Brady, 2007; Cargile Cook, 2002). One of the most prominent academic journals in the field, now *Technical Communication Quarterly*, was in fact originally named *The Technical Writing Teacher*. The importance of good teaching has been a central value of the field, to the point that even the most empirical of empirical studies in technical communication often ends with at least a nod toward how the findings might affect what and how we teach.

Acting upon this value, technical communication teachers often take their cues for what knowledge and skills to teach from what they believe corporations wish graduates to know and to do. This pattern is visible in scholarship in the field. For example, Cargile Cook (2002, p. 19) argued for practical skills in a framework of “layered literacies” including “social literacy” and “ethical literacy,” but the curricular example she provides makes it clear that when her students create professional portfolios, their aim is “to focus on a particular skill a student wishes to market to an employer.” Whiteside (2004) conducted a study of technical communication curricula, program graduates, and managers to identify what skills technical communicators should learn. Rainey, Turner, and Dayton (2005) asked straightforwardly, “Do Curricula Correspond to Managerial Expectations?” Bryans *et al.* (2000) analyzed job advertisements to assess what skills employers wish technical communicators to bring with them to the workplace. Similarly, Stevens (2005) surveyed recruiters to determine what technical communication skills employers wanted. Another common move has been to advocate for some extension or refocusing of the technical communicator’s skillset to make the professional a more valuable employee. Among many examples, Carliner (2001) focused on the growing importance of information design for the professional skill set, and Applen (2002) made a similar argument for XML and knowledge management as skills students need to learn in technical communication programs.

Perhaps the clearest mark of the prominence of some strain of thought is the expression of its opposite. True to form, some researchers and teachers of technical communication have taken a contrarian position on this issue, disagreeing with the corporatization of education and the temptation to turn the university into a training ground for corporations’ convenience (Bushnell, 1999; Savage, 2004). Others (see for example Hayhoe, 2003) have responded by lamenting the distance between academics and practice, particularly in terms of the perceptions of what technical communication students need to know how to do.

Suffice it so say that the bridge between school learning and professional practice has long been a matter of concern for researchers and teachers, who have expended considerable time and effort to find out what companies need and want in a technical communicator, and to bring curricula into alignment with those requirements and desires.

Standing at the center of this span between curricula and employed practice are technical communication managers, who supervise technical communicators in corporations. These essential people not only oversee the work of technical communicators—they often also participate in the hiring of technical communicators, as well as in their professional development. As a result, these managers can strongly influence the training and education of practitioners, as educators try to meet industry needs and as professional try to improve their skill sets and value to the organizations that employ them. Further, these managers are frequently technical communicators themselves who have risen in the ranks to supervise the work of others.

To understand the attitudes and ideas of technical communication managers more fully, we conducted a study of representatives from prominent companies in the tech sector, including Adobe, Boston Scientific, Computer Associates, Google, IBM, Madcap, and Oracle. These managers served on the Advisory Council for the Society for Technical Communication in 2013–2014.

This article reports the results of one part of that study, focusing on Education and Training. It is accompanied by two other articles addressing findings about other pertinent aspects of technical communication today: Products and Processes (Dubinsky, 2015) and Identities and Relationships (Baehr, 2015).

In particular, in this portion of the study we hoped to identify what skill sets these managers and their companies value in the practitioners they supervise, what relative importance they gave to these skills, and what they value in terms of the education and professional development for technical communicators. Our intent was to answer some questions that sound straightforward, but that are actually quite complex:

- What training, education, and credentials do we expect technical communicators to have before hiring?
- How do we manage their continued professional development?

## Summary of Methods

For a full description of the methodology for the entire study, please refer to the special issue introduction (Kimball, 2015). But in short, we conducted a modified Delphi study, which is a methodology intended to assess the ideas and opinions of a group of experts by asking them to address similar questions through several rounds of surveys, interviews, and focus groups.

Specifically, we conducted four rounds of data collection:

- Round 1: survey
- Round 2: survey
- Round 3: face-to-face focus group
- Round 4: synchronous online focus group

The population for the study was small, defined by the membership of the STC's Advisory Council. Nonetheless, the iterative framework provided by a Delphi study generated a large amount of data for

analysis and comparison, including survey data, written comments, textual transcripts, and observational notes.

Given the large and multivariate nature of the data, we employed text mining and visualization techniques extensively to code and identify patterns and contradictions in the attitudes expressed by the participants. Statistical information graphics including bubble graphs, sparkline graphs, and radar charts were created using content analysis themes, categories, and relationships. These graphics provided us with a more objective perspective than simple subjective interpretation would allow, and arguably greater reliability than manual content analysis, which relies on subjectively derived codes to begin with. This analysis revealed interesting, though inevitably provisional and exploratory findings.

The following sections provide a summary of results from the four rounds of the study. Throughout the following sections I employ results from the sequential rounds of the study to address several important topics relating to Education and Training. Please note, however, that not all of these topics were discussed in all rounds. To minimize bias and preserve privacy, we have anonymized individual participants and their organizational affiliations.

## Credentials

As teachers with students entering the profession, the research team was keen to ask what credentials would signal to the managers that potential employees had the appropriate skills to be hired in their companies (see Figure 1).

In the survey data from Round 1, fellow academics will be gratified to find that a degree in technical or professional communication clearly tops the list of preferences, followed closely by a college degree in English, communication or journalism. A college degree

Credentials by weighted rank	Rank visual										Rank data (1 high, 10 low)										count	weighted
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10		
Degree in Technical or Professional Communication	■	■	■								3	2	1	0	0	0	0	0	0	0	6	1.67
Degree in English, Communication, Journalism	■	■	■								2	2	1	0	0	1	0	0	0	0	6	2.50
Technical degree				■	■	■					0	0	2	1	2	0	0	0	0	0	5	4.00
Certificate in TPC from a college or university				■	■	■					0	0	1	2	0	1	0	0	0	0	4	4.25
Other liberal arts degree		■	■	■	■						0	1	1	3	0	0	0	0	1	0	6	4.33
Scientific degree						■	■				0	0	0	0	1	2	0	1	0	0	4	6.25
Industry certifications on skills/software (Microsoft, Adobe, etc.)	■							■	■	■	1	0	0	0	0	0	2	1	0	1	5	6.60
Training courses from professional organizations		■						■	■	■	0	1	0	0	0	0	1	0	1	1	4	7.00
Certification from professional organizations					■			■	■	■	0	0	0	0	1	0	0	2	1	0	4	7.50
Combination of the above								■	■	■	0	0	0	0	0	0	1	0	1	1	3	8.67
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10		

Figure 1. Rank the Following Credentials in Terms of Which Best Signifies Technical Communication Skills and Competencies

## Training and Education in Technical Communication

in some other technical field ranked noticeably lower in desirability than these communication-centric degrees. A degree in science ranked even lower. Even a college or university certificate in technical or professional communication ranked at nearly the same weighting (4.25) as a technical degree (4.0). Filling in the bottom of the list of preferences were industry-provided training and certifications (that is, tool-based training) and training provided by professional organizations.

This low ranking of technical and science degrees might seem to contradict other studies that suggested the importance of domain-specific training for technical communicators (see for example Lanier, 2009). Of course, the contradiction could be a function of the predispositions of the small group of participants. But the Delphi method allowed us to ask participants in Round 2 to comment more specifically through followup questions grounded in the puzzling response to Round 1. Rather than asking what made technical and science degrees come out relatively low, however, we decided to ask the question positively: “Traditional college degrees in TPC, English, Communication, or Journalism came out as the most desirable credentials. What is it about these traditional college degrees that you value in potential employees?” The responses emphasized the traditional skills in writing and critical thinking often remarked upon as the hallmarks of a liberal arts education (not all participants responded):

“Broad communication and communication problem-solving skills; the specific focus on the communication of technical information; the ability to analyze and synthesize and communicate that technical information from a position of user advocacy.”

“Deep understanding of English and language is necessary in order to simplify content and make it (a) more accessible and (b) more economic.”

“Good writers can be found in other fields, but having the experience of writing—which teaches the cycle draft-edit-draft-edit-publish—is invaluable. I’ve seen a number of candidates who have stellar tech experience but just don’t understand the amount of work that goes into writing.”

“The level of confidence in the curriculum of traditional colleges is high. With accreditations /

certifications [sic] and online degrees, the level of confidence in the outcomes of their coursework is low.”

So while Lanier’s (2009) analysis of job advertisements may indicate that human resources personnel, subject-matter experts, and perhaps upper-level managers think technical communicators should bring domain knowledge to work with them, these direct supervisors of technical communicators seem to think that broad, general skills in writing and communication suit their needs best.

That said, we were also curious to find what distinctions the participants might express between degrees specifically in technical and professional communication, versus degrees in more general liberal arts subjects or other communication fields. These credentials all came out high in the rankings, but TPC-focused degrees clearly came in at the top of the list. So in Round 2 we asked, “What do you see as the differences between a degree in Technical or Professional Communication and a degree in English/Communication/Journalism?” The responses were as follows (not all participants responded):

“TPC degrees are more practical and focus on the specific rhetorical devices needed to communicate technical information. English degrees are often more literature focused and the style of communication in eng/comm/journalism is not specific technical fields and information.”

“Degree in Tech or Professional Communication is more focused towards our needs...”

“Tech writing is documenting the work of others for a specific, known audience.”

“Not much.”

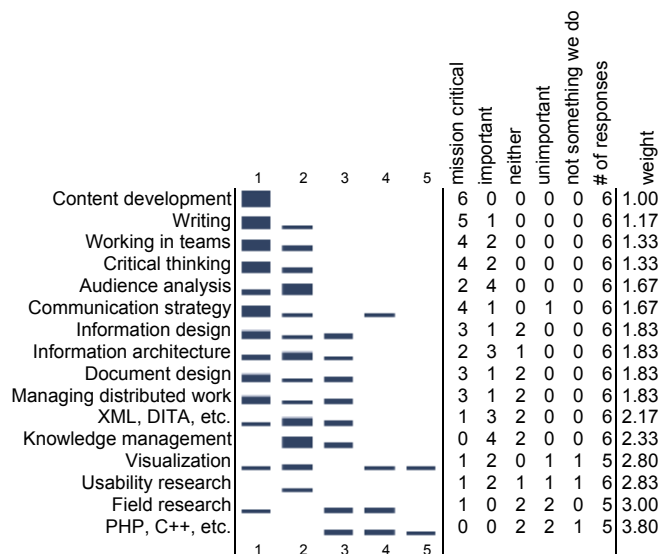
Two participants’ use of the word “focus” and another’s use of “specific” is revealing, suggesting that these participants valued credentials showing that students had gained facility with the particular skills and concerns of this profession, over general communication skills or facility with skills from another profession. (Then again, the last participant seemed to suggest that we may be splitting hairs.)

## Skills and Competencies

Regardless of the credentials we offer, however, a central question is exactly what should students learn in order to gain those credentials? Or put another way, what skills and competencies should we be teaching?

As researchers and teachers, we wanted to extend the research of others (Bryans North & Worth, 2000; Stevens, 2005; Whiteside, 2004) in asking about the relative importance of technical communication skills from the perspective of managers and the companies they represent. Figure 2 shows the Round 1 results for this basic question, in which we asked participants to mark skills as “mission critical,” “important,” “useful, but not essential,” “not necessary,” or “not desirable.”

Responses showed that for the most part, traditional content skills and their thoughtful application came to the fore. Content development and writing generally received the most weight and the most “mission critical” responses, followed closely by critical thinking, audience analysis, and communication strategy. Design-oriented skills formed a second tier, including information design and document design (ranked 7 and 9) and more distantly by visualization (13). Visualization, in fact, was distinguished by actually being marked “not desirable” by one participant.



**Figure 2. Relative Importance of Technical Communication Skills and Competencies**

Interestingly, working in teams ranked highly (3), while managing distributed work ranked considerably lower (11). This split might suggest either that managers do not see managing geographically distributed teams as the responsibility of the team members, or that they see such work as so normal today that it's not worth emphasizing.

Skills with information architecture, XML, and DITA were followed closely by knowledge management, suggesting that participants recognized these skills as related and important, but not as urgent compared to more traditional technical writing skills.

At the bottom of the list were some of the skills academic researchers hold most dear: field research and usability research. This ranking reinforces evidence suggesting that usability testing and field research may be *ideal* skills, but not ones that practicing professionals have much time to apply (Kimball, 2013).

Participants volunteered a variety of other desirable qualities, which seemed to form three categories:

- General business skills: presentation skills, “time management,” “assertiveness”
- Subject-matter knowledge: “Information Engineers [technical communicators] and Architects are expected to actively develop Subject Matter Expertise for the products for which they author and deliver content”; “understanding product usability and features”; “technical aptitude.”
- Iterative project management skills: “Agile scrum competency,” “working in an iterative environment”

All told, these survey results suggest that despite many comments about how different technical communication is today than it used to be, technical communication managers still valued traditional technical writing skills and general business and project management skills over technical skills.

## Technical Communication: Scope and Skills

However, further examination of this topic in later rounds revealed a tension between three skillsets those entering the profession should learn: basic writing skills, technical communication skills, or strategic skills based on domain knowledge.

## Training and Education in Technical Communication

### Writing Versus Communicating

At the end of the Round 2 survey, we asked participants an open question: “If you could give academic program directors one piece of advice to make sure their programs were meeting the needs of field, what would it be?” Four of the five respondents focused on expanding or broadening students’ skills beyond technical *writing* per se. One encouraged a focus on new approaches and technologies, such as mobile and cloud delivery of content. The other three suggested curricula that would encourage students to develop “systems thinking” skills, “interpersonal skills” such as “assertiveness and independence,” and technical skills or domain knowledge in other professions, such as engineering or project management.

Similarly, in the focus group of Round 3, one participant commented that “I think the focus on writing in the past is coming back to bite us... we have an industry of people who are writers—they want to write—this is not a collection of personality characteristics that lend themselves well to design for example.” This distinction between writing and design suggests that the participant saw writing as a more passive skillset than design—a matter of *writing down* things other people say, rather than of being involved in more strategic decisions about product development.

When we asked participants to elaborate later in the focus group, the same participant responded “I think it’s content experience,” which might seem to put the lie to the results of the skills questions in Rounds 1 and 2. But the participant then defined “content experience” as

“Content, presentation, navigation and delivery. Presentation is form, medium, format, information design within a page for example, tables, lists ... And media. Navigation is organization, structure, access. And delivery is when, where.”

This broad definition suggests that despite claiming the importance of content, even technical communication expertise is seen as part of the presentation level, rather than the “content” level per se.

Seeming to agree, another participant responded with a story about setting up a group of technical communicators in one of her company’s European offices, describing them as “highly motivated, really good communicators with excellent English skills,” who despite their lack of training as technical

communicators or as technical experts have been “a huge success for a for us.” But the first participant countered that “people are hiring technical writers who can write and who have a very strong technical background. Technical expertise and good grammar are the linchpins to getting a job.” However, she argued that hiring such people was ill-advised, and that “we need to educate the people hiring these people.” In other words, the participant seemed to suggest that we need to train people beyond writing *and* content expertise, to be competent in the entire communication process: content, presentation, and strategy.

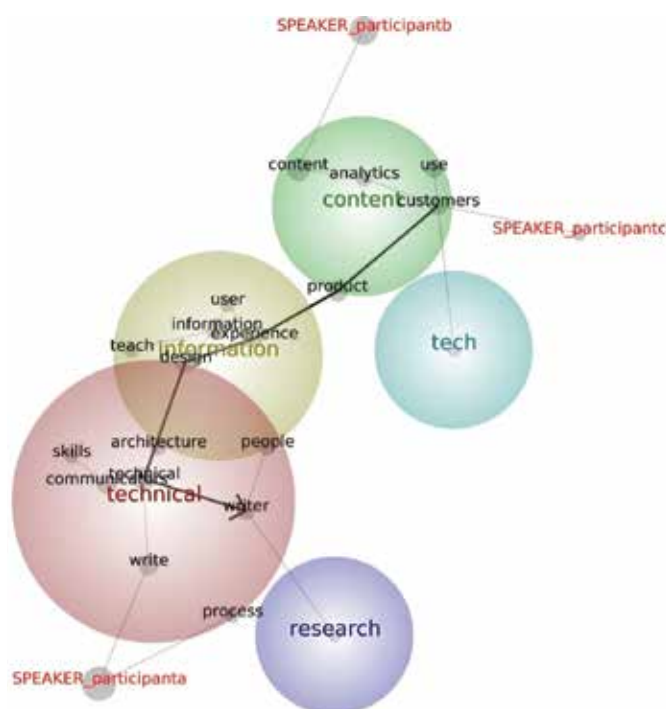
This exchange suggests that opinions differ on whether technical communicators should simply be smart, well-trained writers, experts in communication more broadly, or participants in determining the entire organization’s strategic goals. The hurdle from writer to communicator may be more daunting than we thought for some practitioners, and the hurdle from communicator to “symbolic analytic worker” even more so (Johnson-Eilola, 1996).

### Technical Communication and Corporate Strategy

The difficulty may be that the relationship between *content* and corporate strategy is perceived as being stronger than the relationship between *communication skills* and corporate strategy. A concept map of the Round 3 transcript generated in Leximancer appears to bear this out (see Figure 3).

As described in the introduction to the special issue, Leximancer processes a transcript to identify significant concepts, then groups the concepts into more- or less-coherent themes, which are heat-mapped to correspond to a connectivity rating. The most connected theme is always rated 100%. Please note that the circles do not form Venn diagrams—any overlap is simply an artifact of the three-dimensional nature of the graphics, which can be rotated for viewing from various angles. In addition, the size of the circle for each theme carries no significance—the software simply sizes the theme circles big enough to make room for the concepts they contain. However, the distance between concepts in the diagrams is significant, as is the number and length of paths necessary to get from one concept to another. Closely related concepts are visualized as close to one another on direct paths, while distantly related concepts are visualized as far apart, linked by multiple steps.





**Figure 3. Concept Map of Round 3**

This map shows how related concepts from the focus group transcript cluster together into themes. Leximancer has labeled the most coherent theme (100%) “technical,” holding the following concepts: technical, skills, communicators, writer, people, write, and process. Clearly, this reflects the fact that the conversation in Round 3 focused on technical communicators and writers. The smaller bubble above, however, which Leximancer labeled “information,” is less coherent, with a connectivity rating of 88%. It holds more design-centered concepts, including information, design, user, and people. The theme at the top, labeled “content,” is a further step less coherent, with a connectivity rating of 86%, including concepts such as content, customers, and product. How do these themes connect? If we trace the path from “writer” to “customer” (the bold line), we see that it passes through “technical,” “design,” and “product.” In other words, this conversation seemed to bear out the idea that writing is in the participants’ minds tied to the central mission of an organization through design, producing things that meet the needs of users and customers. As a result, as one participant commented, “technical writers should be part of the [product] design process.”

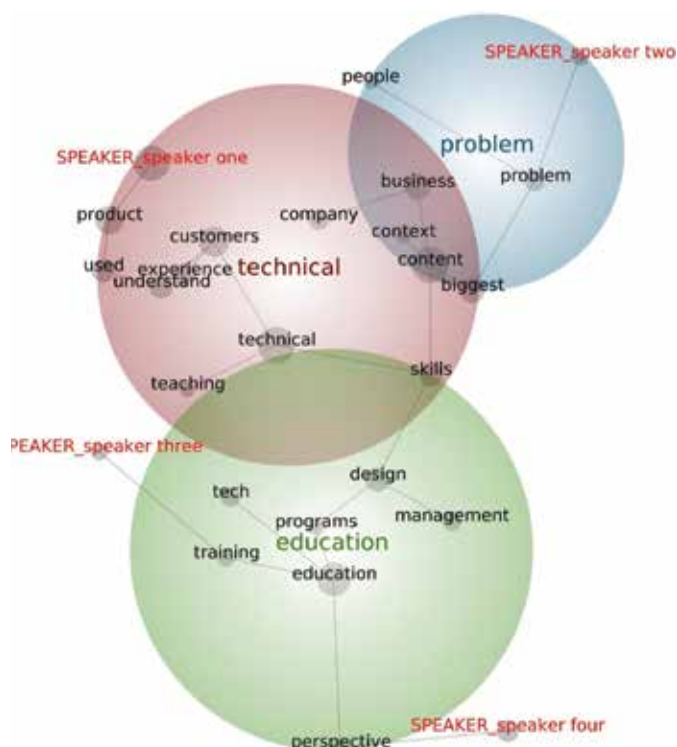
## School to Work

This perceived dissociation between technical writers/communicators and corporate content strategy is echoed in the common perception of a gap between the education schools provide and the skills employers need. A visualization of the education-focused portions of Round 4’s online focus group gives a good sense of this persistent division (see Figure 4).

Clearly, the activities in the theme “technical” focus on larger corporate strategies, with a high level of connectivity (100%). The “education” theme is much less coherent (39%). It is also connected to the “technical” theme only through the concept “skills,” which is the central question educators want to answer: what skills should we teach?

In keeping with this dynamic, participants did not always have a positive view of technical communication academic programs:

“My perception is that many traditional institutions appear to be teaching technical communication using outdated methods that are not always



**Figure 4. Concept Map of Round 4 Education & Training Responses**

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synchronized with how tech comm professions are actually working in the ‘real world’.”

“We’re still, from an education standpoint, still in the days of Henry Ford producing T model [sic].”

One participant elaborated,

“I think one of the problems with education and training is it’s usually based on the products, not about how the customers use the products. ... So I feel like, in order to write good content, you have to be able to personalize the customer’s experience with that content, and the only way to do that is to make sure that our technical communicators actually have contact with real live customers.”

In other words, rather than simply documenting products or writing down what engineers say they should, technical communicators need to be able to meet the needs of customers directly—and educators need to find ways to teach students how to do that. Others made similar points:

“A lot of technical writers may have some domain expertise, a lot of product expertise, but I think for me the missing link is usually that the technical communicator doesn’t often understand how their products are used by customers.”

The managers also took some of that responsibility on their own shoulders. One commented,

“Industry professionals should get more involved in education and training to help develop the skills and knowledge of the next generation of technical communicators. More corporate support for internships and related programs would be beneficial for them and technical communicators—perhaps STC could a catalyst and facilitator of such partnerships.”

Another concurred, suggesting that what new technical communicators need most is contextualized training: “And I think that’s where the training and education needs to come, and not necessarily from a high level of education perspective.” The participant continued,

“We no longer can teach people how to be technical communicators through a book. It has to be done through our writers getting experience with the product or service that our company is selling. They have to understand what that customer is going through, ...—how your product is involved in their daily life, and the business problems they’re trying to solve.”

### Professional Development and Training

Accordingly, our study also took up the topic of professional development and training on the job. Much of the conversation regarding professional development in technical communication has centered upon two issues; learning new skills (see for example Applen, 2002; Carliner, 2001; Selber, 1994) and certification (among many others Hayhoe, 2000; Rainey et al., 2005; Savage, 2003). We wanted to know more specifically what kind of professional development opportunities technical communicators currently have available to them through their employers, as well as the perspective of technical communication managers on this subject.

First, we asked what kind of training employers provided. The results suggested that among this select group of prominent companies, at least, in-house training, including informal training, formal training, and mentorship programs, was more common than external training (see Table 1).

**Table 1. What Kinds of Training or Training Support Does Your Company Provide Technical Communicators?**

Answer	Count
Informal in-house training	5
Mentorship program	5
Formal in-house training	4
Support for external self-paced training	4
Support for external formal training	3
Support for traditional education (college degrees)	3
Other	0

This result fits with the result of the credentialing questions, which showed managers preferring preparation in technical communication skills over preparation in domain knowledge or tools. For this

group, at least, tools and domain knowledge seem best taught in context.

Then we asked what support companies offer for professional development. All reported that their companies provided at least some support for professional development activities. But the most common response (chosen by all participants) was “on a case by case business,” which suggests that support for professional development is *ad hoc* at these companies, rather than systematic. Five participants reported that companies were willing to give technical communicators time for professional organizations and activities, and four participants reported that their companies provided support for professional licensing and certification. However, only half gave support for travel to conferences and conventions, perhaps the most expensive of the options. The picture here seems to be a general openness to professional development, as long as companies aren’t obligated to support it and it’s economical.

Technical communication managers were ambivalent about recommending any particular option to the people they supervise, however. No more than two marked any of the following options (see Table 2).

**Table 2. If Your Employees Need Professional Development, Which of These Options Would You Recommend?**

Answer	Count
Advanced degree in TPC	2
Academic certificate program	2
STC sponsored webinars	2
Other trade webinars	2
Other Professional association certificates or courses	2
STC sponsored certificates	1
Other: in-house courses	1

Finally, we asked, “How is training, education, and professional development for technical communicators valued or recognized in your organization?” The commentary in the responses was ambivalent. Three respondents suggested it was important: “It’s part of our yearly goals as far as professional development”; “very valued”; “Training, education, and professional development are highly valued for all employees in my organization.” Yet two were less positive: “It is not

valued”; “It’s viewed as a nice supplement to experience but not necessary for career growth.”

Because of this ambivalence, we asked a followup question in Round 2, asking participants to comment on this difference of opinion: “Responses about professional development were split, with some companies placing a high value on it, and others not so much (see responses below). What do you think causes this difference? And if not through professional development, how do employees stay current with broader trends in the field?” Round 2 responses went into considerably more depth, particularly those criticizing some organizations’ lack of support for professional development:

“The company expects, requires, and rewards people to develop professionally.”

“Perceived value of professional development has eroded as the workforce has been progressively ‘down sized’ and as many companies have foolishly pushed for unrealistic “productivity per employee” ratios. In short, today’s workload and >50 hour schedule leaves little or no time for professional development. Ironically, we need PD more than ever; upper management has lost sight of its value to company productivity and profitability.”

“I think some orgs think of doc writing as a necessary evil and the writers accept that perspective. Training and development can inspire writers to go beyond what is “expected” and contribute in unexpected ways.”

“For technical writers, there is not much infrastructure investment from professional development standpoint. It is a career that seems to level off and then folks aspiring bigger better things are required to move into other roles and functions. Technical writers are expected to stay current through internal and external collaboration communities (STC being one of them).”

So according to these managers, some companies could do more to support technical communicators in their professional development. Without that kind of support, technical communication can become “a career that seems to level off.”

## Training and Education in Technical Communication

### Technical Communication Careers

Comments in Round 4 reiterated this sense that the career levels off. One participant noted that “Technical Communications as a career has a glass ceiling.” Another responded to our Round 4 open survey question about the three biggest problems facing technical communication today by putting this first: “lack of career path due to early plateau-ing in traditional roles.”

The participants mentioned several potential solutions to this problem. First, good basic writing skills can go a long way, although not all the way. Second, technical communicators need to learn “how to be flexible in how to use the resources and how to develop professionally on their own and keep the career fresh and learn those new skills that they need to learn even though they’re not in school anymore.”

Finally, participants suggested that the ultimate solution might lie in promotion beyond the profession into management—a step that several of the participants had already taken. In this regard, they seem to suggest that technical communication may not be a lifelong career for most professionals today. Instead, technical communicators might find the best career path takes them beyond the profession per se.

### Conclusion

So in sum, responses to questions about Education and Training are somewhat troubling. Participants emphasized the importance of basic technical writing skills and traditional credentialing (such as degrees in TPC) over more technical skills or degrees. Yet they also advised that academic programs push students beyond this traditional role, by teaching strategic thinking, general professional skills, and confidence. Otherwise, the sense seemed to be that students might be stuck in relatively low-level positions, unable to rise past the “glass door” of technical writing. Moreover, some of these respondents felt their companies were not invested in providing a path for advancement for technical communicators through professional development.

It sounds as though the participants saw a conflict between an ideal and the real path to and through the profession. Ideally, academic programs should provide basic skills, both in technical communication and in professionalism (project management, clear interpersonal communication, professional confidence,

and so forth). Companies then ideally provide the situated development—tool training and domain knowledge, in particular—that new employees need to maximize their value to the organization. In real terms, however, if professional development and training are seen as costs rather than investments, the entire preparation of new professionals rests on academics, and professional development depends on the technical communicators’ own motivations to learn and rise throughout their careers.

Difficult challenges to face, indeed.

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### About the Author

**Miles A. Kimball's** research focuses on the performance and history of technical communication, as well as on visual communication and document design. He is the author of *Document Design* (Bedford/St. Martin's 2008) and of *The Web Portfolio Guide* (Longman 2003). Contact: miles.kimball@gmail.com

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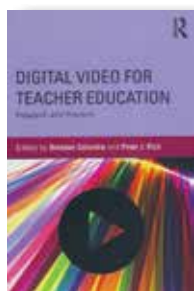
# Reviews of Four Books on Digital Video for Online Learning

Gregory Zobel

## Introduction

Creating effective learning content is an ongoing challenge for instructional designers. As online education expands, more face-to-face classrooms are adopting online learning tools, like digital video and online communities, for their classrooms. Whether designing face-to-face or online courses, instructional designers need solid understanding of online communities, digital video, and online learning contexts. *Single-Camera Video Production* and *Designing Online Communities* give designers and teachers useful support during the content and course design's formative stages. Both books help designers and teachers to create communities and videos, and to better understand the tools, their power, and how they impact learning. The best use for *Digital Video for Teacher Education* is during or after teaching—for analyzing screencasts or lectures—to help teachers reflect on and improve their practice, affect, and presence. *Learning Online* contextualizes the diverse tools with data-driven results and helps frame how instructional designers might use these tools. Designers will find that each book will help expand their understanding and application of two key online learning tools: forums and video.

## ***Digital Video for Teacher Education: Research and Practice***



*Digital Video for Teacher Education: Research and Practice* is a valuable edited collection on working with video of interest to educators and teachers. This collection comprises three sections: Teacher Learning with Digital Video, Facilitating Teacher Learning with Digital Video, and Administering Digital Video for

Teacher Education.

Each section contains four different articles, so the reader receives depth and breadth under each theme. Multiple chapters address the importance of *noticing*: learning how to pay attention to the important aspects of their teaching, and others' teaching, as recorded in the video. Watching videos is pointless if students or colleagues are not mentored in how to recognize good teaching. Similarly, multiple chapters connect *noticing* to the value of using digital video for *reflection*. Multiple authors indicate that the value of video for reflections was limited at best if pre-service teachers or teachers new to using video were not offered specific guidance. Thus, multiple chapters emphasize the importance of not integrating technology without guidance, training, or support.

While much of *Digital Video for Teacher Education* focused on teacher education, multiple chapters have value for educators interested in digital video. Specifically, Chapter 2 focuses on how analyzing digital video can support educators' development of a professional pedagogy. McDonald and Rook employ Goodwin's (1994) twin practices of highlighting and coding to help develop this vision. The authors also emphasize the importance of alternating observation with teaching practice and working with more experienced teachers to learn how to observe. Similarly, Chapter 5 is important as Rich examines the role that others play in impacting digital video analysis and how they can impact the analysis. The roles discussed fell under the categories of administrative, discussant, facilitator, and technologist (pp. 75–76). People preparing to use video can draw value by reflecting on how to put together video discussion and reflection groups as well as considering who will see the videos afterwards.

Chapter 12 made the distinction on the impact that audience has regarding the video. Are the videos being made for low-stakes uses, such as internal assessment, portfolio video, or self-improvement, or are they going to be used for professional recognition and external assessment?

While targeting teacher educators, *Digital Video for Teacher Education* offers multiple articles and resources for improving video work. Calandra and Rich's book is a definite consideration for teacher educators interested in remaining current with digital video technology.

### ***Learning Online: What Research Tells Us About Whether, When and How***



Means, Bakia, and Murphy provide an eight-chapter overview of the use of online learning in K–12, higher education, and settings outside of traditional schooling. The authors in *Learning Online: What Research Tells Us About Whether, When, and How* accomplish a great deal and do it well. This book gives a well

written and accessible, quick, holistic view of online learning grounded in meta-analysis of research articles about the effectiveness of online learning. The solid index and numerous citations offer significant value.

Online learning and its booming history is covered well following the Introduction. Means, Bakia, and Murphy next discuss other online learning variables: context, instructional design, implementation, feedback, and outcomes. Chapters 1 and 2 are arguably the most important for readers new to or interested in obtaining a quick overview of online learning, its variables, and its effectiveness.

Subsequent chapters focus on specific interests or questions, such as higher education, K–12, and interest-driven online learning. These chapters are informative for those readers seeking an overview of diverse online education areas.

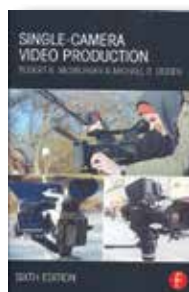
Readers may find Chapter 6, which covers online schools and universities, more relevant than others. This chapter discusses private and public organizations, for profit or not, and presents a short history of these institutions. Means, Bakia, and Murphy then address advantages, controversies, barriers, and reasons to have online courses, programs, or schools. Unfortunately, they provide less than three pages about the effectiveness of fully online courses and programs (pp. 132–134).

Many K–12 and higher education readers will value the chapter on online learning for less-prepared students. This is a rich, thorough examination of the

challenges in developing quality online education; it also discusses the effectiveness of diverse programs as well as factors that affect the outcomes for less-prepared students. Many readers might have an interest in Chapter 8 because it addresses the common conception that online education is less expensive than face-to-face education and thus, potentially, online education could help rescue financially struggling schools. While short, this will help in better understanding the economics of online learning, or, if facing online learning promotions, a means to educate and ground colleagues' and peers' discussion about the costs of online learning.

The Conclusion, besides the first two chapters, is probably the most important to read because it offers suggestions on how to improve online learning and proposes multiple directions for future research in online learning and education. Overall, *Learning Online* is a pleasurable dive into a well-organized, clearly written overview of online education.

### ***Single-Camera Video Production***



The sixth edition of *Single-Camera Video Production* is informative, packed with details, and serves as an effective reference for those wanting to integrate more video into their research, teaching, or content creation. This book provides the scaffolding needed to build your understanding and experience in

shooting and recording video.

Musburger and Ogden cover video production basics, such as the audio and video equipment limitations, as well as understanding how to measure and capture audio signals. They review different calibers of equipment, from consumer to professional, video compression, and optics for the camera. The authors clearly explain and present topics that have always eluded me, such as the effective selection and use of microphones, and setting up proper lighting.

*Single-Camera Video Production* serves well as a handbook to use when recording your first video. The book walks the readers step-by-step through the pre-production, production, and post-production processes using multiple screenshots, visual examples, charts, and tables. It's a great reference resource to have on one's bookshelf.

## Reviews of Four Books on Digital Video for Online Learning

### *Designing Online Communities*



Owens' background not only provides credibility and nuance to his discussions about online communities and forums, it also shapes his twin goals for *Designing Online Communities*. His first goal is studying how those who create or maintain communities appear to have increasing control over the

community's identity. The second goal is to build on existing research methods for online research and offer an effective framework for approaching online communities. He blends these goals in the book as part of a larger approach to working and researching online. Owens writes, "Realizing that researchers need to disaggregate the web into a set of distinct platforms and systems that are enabled over the foundational protocols that enable it requires us to think about the ideas and perspectives that inform how particular features, tactics, designs, and configurations are enabled to create particular kinds of results" (p. 11).

For researchers new to studying online communities, Chapter 2 is where Owens synthesizes research methods from multiple fields and then provides a framework for studying online communities.

In Chapter 3, he presents his key research questions on presenting and discussing the specific methods and setting out a model for future studies. These questions set the stage for Chapter 4, where Owens does an engaging analysis and close reading of a user guide. Chapter 5 is broader and offers an historical overview of online communities, their histories, and their rhetorics by evaluating and analyzing books that taught and guided the creation and operation of these online communities. It covers multiple facets of online communities, from reputation and control to motivations for starting online communities. Most interesting was the analysis and discussion of how social networking differs from online communities. These chapters are engaging and can provide excellent models for faculty teaching graduate students online research methods.

Owens, in Chapter 6, focuses on how online community authorities—the creators and

managers—enact and keep control. He retains attention on how authoring software that enables online communities also embodies the authors' individual and community rhetorics and values. Owens uses objects like the "Post" button in an online forum or turning off email notifications to thread participants to distinguish and illustrate the diverse interests, agendas, and goals of software designers, community moderators, and community participants.

*Designing Online Communities* is a fast read with many chapters working well together to show examples of what Owens' methods can achieve through the different examples and scopes of his research.

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### About the Author

**Gregory Zobel** is an assistant professor of educational technology at Western Oregon University. Trained in technical communication, usability, and rhetoric, he supports and trains educators employing technology to enhance and enrich learner engagement, accessibility, and content delivery in person and online.

**Table 1. Books for Instructional Design Compared**

	<b>Learning Online</b>	<b>Digital Video for Teacher Education</b>	<b>Single-Camera Video Production</b>	<b>Designing Online Communities</b>
Audience	Beginner to intermediate	Beginner to intermediate	Beginner to intermediate	Beginner to intermediate
Major Strengths	<ul style="list-style-type: none"> <li>• Useful but brief overviews and introductions for beginners</li> <li>• Bountiful references and resources for beginners and researchers</li> <li>• Breadth of coverage helps round out views of online learning</li> <li>• Easy to read and understand</li> <li>• Useful as a reference</li> <li>• Provides a larger frame for Instructional Designers (IDs), can help orient new IDs, and provide materials that IDs can share with clients new to online learning</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple perspectives on using DV effectively in teacher and faculty preparation</li> <li>• Balances research findings with guidance to develop good digital video practice</li> <li>• Emphasis on properly training teachers new to digital video</li> <li>• Reflective practice could easily be used to shape future course content and presentations</li> <li>• Useful tool for IDs to have when speaking with clients or faculty</li> </ul>	<ul style="list-style-type: none"> <li>• Incredible reference text with clear organization</li> <li>• Solid introduction to video for newbies, but has enough information to support those with existing skills</li> <li>• Plenty of visuals, screenshots, and charts</li> <li>• Appropriate and accessible voice and authorial tone throughout</li> <li>• Good for IDs starting to work with video</li> </ul>	<ul style="list-style-type: none"> <li>• Addresses important, but often overlooked, aspects of control in online forums</li> <li>• Presents and explains an imitable and useful approach to research online</li> <li>• Exceptional writing and engaging work</li> <li>• Valuable text for those teaching or learning digital research</li> <li>• Helps IDs see the ubiquitous online learning forum in a new light</li> </ul>
Major Weaknesses	<ul style="list-style-type: none"> <li>• Some readers will find less interest in the middle chapters</li> <li>• Readers not given an in-depth history or explanation of online learning</li> </ul>	<ul style="list-style-type: none"> <li>• Only some chapters relevant to Instructional Designers, but these are easily excerpted</li> <li>• A bit of effort required to translate the K–12 practices for group digital video review to higher education</li> </ul>	<ul style="list-style-type: none"> <li>• Some images could be enlarged</li> </ul>	<ul style="list-style-type: none"> <li>• More specifics on the research method would have been nice</li> <li>• Text could have been more developed</li> </ul>
Comments	Short, but powerful, and research-driven overview of the online learning environment and related challenges and variables.	Good value. Helps direct smart use of video for improving content and pedagogy.	Excellent value as a teaching and learning text as well as a reference text.	Easy to read in one or two sittings. Important work about online forums for anyone working in online research or designing classes with forums.
Rating (5-star scale)	*****	****	****	*****
Cost (USD)	\$39.95	\$48.95	\$31.95	\$36.95



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## Why We Fail: Learning from Experience Design Failures

Victor Lombardi. 2013. Brooklyn, NY: Rosenfeld Media. [ISBN 978-1-933820-17-0. 234 pages, including index. US\$39.00 (softcover).]



Do you have one or more design books by Donald Norman? If so, Lombardi's *Why We Fail: Learning From Experience Design Failures* is a perfect complement. If not, then Lombardi is a good place to begin. He argues that learning from our design successes is only part of the story. That approach works well for

simple products. However, how do we go about learning from our failures? Lombardi answers by turning design on its head and begins with what he calls the customer experience model.

In 10 chapters, Lombardi describes his customer experience model and argues its importance. The chapters include an introductory chapter that explains the customer experience model, seven more chapters in which he presents examples from digital products and software of how the customer experience influenced a complete failure or a redesign, and ends with a summary and conclusion.

Chapter 1 defines the model and outlines the rest of *Why We Fail*. Lombardi shifts the definition of failure away from the product itself to the customer's experience. Products may have excellent specification and design characteristics, yet fail in the marketplace when customers try it.

He examines Microsoft's MP3 player, Zune; BMW's iDrive; Apple's Final Cut Pro X video editing software; Nokia's Symbian S60 phone system; Plaxo; and OpenID. Lombardi presents many others, but these are the major ones. Discussing one and sometimes two products or software in a chapter focuses on what led to customer acceptance by following the product's marketplace failure (such as Zune) or design modification (such as iDrive). This focus on customer experiences is the difference between Lombardi's book and those by Norman and others.

How do you determine what aspects of the customer experience are the direct result of product or service design? To answer this, he proposes an experience design method that is predicated on the traditional scientific

method: observation, hypothesis, test, and interpretation of the results.

Lombardi's method includes five steps, each of which emphasizes that the design failure analysis should focus not on the product or service, but on the customer's experience. A preparatory step, called Step 0, establishes the method including the people involved and expectations; the tests and how to run them; and the results. Step 1 is to understand the customer experience. Step 2 is to form a hypothesis that you can test. Step 3 is to run a simple experiment that can be reiterated when needed. Finally, Step 4 is to interpret the test results. He says that there's little to interpret if the hypothesis is well stated, there's a clear threshold established for failure, the test is appropriate, and the test is properly executed.

As mentioned before, Lombardi's book takes the approach that failure is oftentimes the direct result of a poor customer experience. *Why We Fail* provides a method for approaching an experience that will lead to improvement and, perhaps, marketing success.

### Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he serves as guest professor at the University of Paderborn, Germany.

## Social Media in Disaster Response: How Experience Architects Can Build for Participation

Liza Potts. 2014. New York, NY: Routledge. [ISBN 978-0-415-817424-0. 162 pages, including index. US\$44.95 (softcover).]



In *Social Media in Disaster Response: How Experience Architects Can Build for Participation*, Liza Potts studies how emerging social Web tools accumulate data, validate information, and curate knowledge to facilitate communication in high-pressure, high-stakes disaster cases, focusing on several recent

natural and human-made disasters. The use of the social

Web during times of disaster is a largely untapped subject area. Under the banner of experience architecture, this book initiates the conversation on how to model systems and tools to build participant-centered architectures for empowering and fostering participatory cultures on social Web during times of disaster and daily life.

Potts argues for the urgent need for both humanists and technologists across academia and industry to study participants' experiences collectively, since these experiences involve not only technological use but also social use. Unfortunately, this kind of sociotechnical usability study on crisis communication with an emphasis on rhetorical problems (such as culture and participation) is missing from too many digital experiences studies. Focusing on rhetorical problems with an emphasis on technical and scientific complexity, *Social Media in Disaster Response* presents an emerging trend of technologists studying human experience and humanists analyzing information architecture. Potts's research contributes to what Grabill identified, in 2009, as "moving the humanities, and especially the field of technical communication away from being the handmaiden to technology and science" (as cited in Grabill, p. 16).

This book is divided into four sections. The first section defines the concepts of experience architecture and social Web, and differentiates the term "participant" from "users." Participants are actively involved, community-oriented users, and essential partners to co-create social Web tools. Potts expands the definition of participants to include any actor within a network: human, technology, organization, event, and so on. In the second section, Potts adopts a different method for architecting the social Web—a rhetorical approach to focus on participation (audience), events (exigency), and architecture (form and context). The third section further applies this rhetorical method to analyze communication exchange in social networking through three disaster cases: Hurricane Katrina, London Bombings, and Mumbai Attacks. Each case's chapter highlights one stage of communication exchange: how participants locate data, how to validate data as accurate information, and how to redistribute that information as shared knowledge. Potts concludes the fourth section by examining accumulating challenges for experience architecture researchers and calls for scholars, practitioners, and teachers to delve into the architecture

of sociotechnical systems under participant-centered frameworks.

*Social Media in Disaster Response* provides methods, tools, and examples for analyzing communication systems and experiences as well as architecting the social Web, which could interest a broad body of readers within academia and industry. While it is innovative in research methods, Potts's book needs to solidify the discussion on the social use of technology and communication issues of participant experience. The frameworks of participant-centered architectures are macroscopical and thus require studying more recent disaster cases to test, improve, perfect, and make them practical. The brief closing discussion of curriculum on experience architecture implies a promising interdisciplinary research area, especially for the humanists.

### Lin Dong

Lin Dong is a PhD candidate in Rhetoric and Composition in Georgia State University. She has broad research interests in cross-cultural and international rhetoric and communication, especially in technical and professional communication in the global contexts. Lin is currently preparing her PhD dissertation on international crisis communication from a sociotechnical aspect.

## The Best American Infographics 2014

Gareth Cook, ed. 2014. Boston, MA: Houghton Mifflin Harcourt. [ISBN 978-0-547-97451-4. 260 pages. US\$20.00 (softcover)].



*The Best American Infographics 2014* is a book for those who have a freshly brewed pot of coffee and the time to be swept away by wonderment and humor. Who would not wonder at the interactive mass of colorful bubbles that instantly identifies the effective tax rates of Standard & Poor's 500 companies? Who would not chuckle at the combination of a hand-drawn, cat-emotion map with several Google neighborhood maps that presents the attempt to chart the movements of a meandering house cat?

I couldn't tear my attention away from Cook's book. I wanted to complain because some of the infographics

feature too many words for my taste. However, those examples are balanced by infographics that emphasize visuals or beautifully incorporate images with a modest number of words. Besides being overwhelmingly colorful, the infographics vary widely in style and shape, including maps, photos, hand drawings, charts, tables, computer drawings, and a noticeable number of circles, spirals, and serpentine lines.

*The Best American Infographics 2014* is divided into four sections that present infographics pertinent to individuals, humanity as a whole, “the material world,” and “interactive” subject matter. As stated by Nate Silver, the author of the introduction, “Visual approaches to organizing information...have a number of advantages against purely verbal ones: approachability...transparency...[and] efficiency” (p. xii). The book itself exhibits these characteristics in the range of topics covered.

For instance, sports fans can view representations of the speed of fastballs and learn about the design of baseball parks. Followers of popular music can learn how long it takes a song to ascend the charts and the ways in which teen idol Justin Bieber has changed over time. Foodies can observe a simple chart that pairs wines with foods and can evaluate recipes that emphasize drawings over words.

Political, scientific, and economics topics, too, are well represented. The number of deaths caused by U.S. drones in Pakistan and the identity of the victims are presented in disturbing detail, as are drawings of the force-feeding of prisoners at Guantanamo Bay, Cuba. The attacks of lions on humans in Africa are the topic of an infographic that depicts the influences on animal behavior of the moon, human activities at dusk, and farming practices. The momentous subject of the raising of the U.S. debt ceiling by U.S. presidents from Jimmy Carter to Barack Obama is presented in a colorful chart. A startling, yet simple, map of the United States reveals that in 39 out of 50 states, the highest paid state employee is a football or basketball coach.

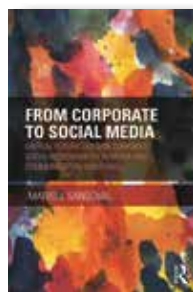
Only a chapter-by-chapter review of the 68 infographics would do justice to their variety, attractiveness, and importance. As a substitute for such thoroughness in this review, I recommend the purchase of this moderately priced book by all who are interested in visual design and the presentation of large sets of data in quickly graspable form.

### Ann Jennings

Ann Jennings is the 2009 winner of STC’s Jay R. Gould award for teaching. She is emeritus professor of English at University of Houston-Downtown, where she teaches part-time in the BS and MS degree programs in professional writing and technical communication.

## From Corporate to Social Media: Critical Perspectives on Corporate Social Responsibility in Media and Communication Industries

Marisol Sandoval. 2014. New York, NY: Routledge. [ISBN 978-0-415-72256-8. 312 pages, including index. US\$135.00.]



The idea of Corporate Social Responsibility (CSR) is that corporations should be responsible to the communities, nations, and world that they inhabit.

Marisol Sandoval provides a critical look at the CSR programs for several multinational corporations and finds them lacking in this book.

To really look at CSR “...requires looking beyond company statements at independent investigations in order to find out whether the corporate rhetoric of serving the common good corresponds to actual business practices” (p. 9).

So whom does Sandoval examine, how does she examine them, and what does she find out? Sandoval investigates these companies based on their represented business segments: (1) Media content—Walt Disney, Vivendi, and News Corp, (2) Hardware—Hewlett Packard and Apple, (3) Software—Microsoft, (4) Telecommunications—AT&T, and (5) Online Media—Google.

She investigates them not only by reading their CSR reports, but also by using reports from corporate watchdogs such as Greenpeace and China Labour Watch, and corporate media watchdogs such as Google Watch and Computer Professionals for Social Responsibility. Other sources include more mainstream media such as *Mother Jones*, AlterNet, Democracy Now, the *New York Times*, the *Guardian*, BBC, and CNN.



What does Sandoval find out? She discovers that Walt Disney, despite being purveyors of happy times at its theme parks and movies, violates standard working conditions in third world countries that betray the themes they work so hard to convey.

News Corp, which most of the world knows through Fox News, actually saves money by being a green company, but that does not keep them from spreading misleading information about climate change, denying or questioning its reality.

Hewlett Packard, whom most of us use every day for printing, struggles with its own e-waste and responsible products disposal, which could be reduced with sustainable design and responsible recycling.

Apple is known for its innovative products, but less known for the labor rights violations in the suppliers that make those products, especially in China.

Microsoft has created a knowledge monopoly, with its patents growing from 1 in 1986 to 3,305 in 2010, while refusing to work with Open Source Software.

AT&T has made itself a major player against net neutrality, and attempts to make the Web a pay-for-service place instead of a utility.

Google has a motto to “not be evil,” but doesn’t think collecting information from its users and selling it to advertisers is wrong.

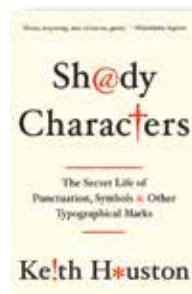
My only criticism is the expense of *From Corporate to Social Media*, which will keep it in the hands of librarians and CSR experts. Yet it is good to have ethical insight into the companies that many technical communicators work for, and that most of us use. After reading this book, you may want to join the voices of dissent, such as Sandoval, against these companies. And while it is difficult not to use Microsoft products, it is easy to turn off Fox News.

### Charles Crawley

Charles Crawley teaches CSR at Mount Mercy University in Cedar Rapids, Iowa, and bemoans the ruination of Wrigley Field by its corporate owners.

## Sh@dy Characters: The Secret Life of Punctuation, Symbols & Other Typographic Marks

Keith Houston. 2013. New York, NY: W.W. Norton. [ISBN 978-0-393-34972-6. 338 pages, including index. US\$16.95 (softcover).]



Keith Houston’s *Sh@dy Characters: The Secret Life of Punctuation, Symbols & Other Typographic Marks* deals with the origins and development of punctuation, and the other little marks and symbols on page and screen, that help us communicate meaning. Viewed this way, it’s a heavy burden for little squiggles such

as , . ? ; : ( ) “ ” & • - — . ¢ ø ° Δ © ÷ and co. It’s even more impressive if you consider that many alphabets—past and present—don’t even *have* punctuation (ancient Greek and Latin, Modern Hindi, Chinese and Japanese).

Origins are not of historical interest only. They sometimes help us understand why we *do* what we do. In addition, how we do some things *better*. As in the case, say, of indicating pauses—one of the most critical roles of punctuation.

Classical Greek *had* no punctuation. Try to imagine how much harder it was to read the language. Besides the spoken language being primary; silent reading was the exception. It was only in the 3rd century BC at the great library of Alexandria that the first punctuation marks appear to address such pressing matters as where to pause, so the reader could better understand what they were trying to read, a problem many untrained authors struggle with today.

So, with lowercase letters, that appear only in the 8th century—commissioned by Charlemagne, to help the small number of literate inhabitants of his empire, we begin to realize the *effects* of a resource like having CAPs and lowercase. Again, other alphabets lack this resource.

Quotation marks got their legs from the common Christian practice of quoting lines from Scripture.

A great value of Houston’s book is to help us understand not just where punctuation *came* from, but where it is *going*. In 2007, for example, the Oxford English Dictionary dropped the hyphen from over 15,000 compound words, while it pops up more often in the *New York Times* & the *New York Review of Books*,



that use hyphens in very creative, and sometimes, over-the-top combinations.

Here's a sample from an article on what the *NY Times* reviewer calls *man films*: "I suspect those **last-hurrah** movies are self-perpetuating clichés with no basis in reality...I know men who enjoy...**boys-only** time with buddies they've known for decades...I've heard reminiscences from men...who are grateful they've escaped **long-ago** romantic disasters."

Likewise, the dash (–) seems to go in and out of vogue. The story's moral: Creativity is important, in words *and* in typography. After all, *every* word was a new word when first uttered. It all balances on those undefinable qualities...of taste and proportion.

### Steven Darian

Steven Darian is an STC Fellow, having retired from teaching business and technical writing at Rutgers for 33 years and in eight countries. He was a manager for Raytheon in Saudi Arabia. Steven's next book is *Tools of the Trade: 83 Steps on the Road to Great Writing*, which is due out in spring 2015.

## Computer Games and Technical Communication: Critical Methods & Applications at the Intersection

Jennifer DeWinter and Ryan M. Moeller, eds. 2014. Burlington, VT: Ashgate Publishing Company. [ISBN 978-1-4724-2640-6. 314 pages, including index. US\$119.95.]



Playing games has become big business, with gaming sales (candy) crushing music and movie sales in the U.S. Unlike the passive entertainment forms it outsells, gaming requires continued engagement with and understanding of technology, making technical communicators ideal teammates in

this billion-dollar industry. Yet, as Jeff Greene and Laura Palmer note in the opening chapter of *Computer Games and Technical Communication: Critical Methods & Applications at the Intersection*, "this ideal match... receives little attention in the professional and scholarly publications" and represents a "partnership still unrealized in the computer game industry" (p. 17).

Recognizing this dearth in scholarship, Jennifer DeWinter and Ryan Moeller offer this edited collection of essays to address the technical and symbolic intersections of these fields.

The anthology includes articles written by and for technical communication scholars, students, and practitioners and focuses on four primary areas: the relationship between technical communication and game studies, the documentation of gaming, the user's involvement in games, and the use of games in technical communication courses. The book demonstrates the gaming industry's reliance upon technical communication for the development, promotion, and use of its games and the need to include professional technical communicators in this work to provide greater industry consistency and quality. The bulk of the collection focuses on industry technical communication practices and includes essays that frame a genealogy of gaming documentation from coin-op technical manuals designed to alleviate industry anxiety to in-game tutorials created to "mediate the complexities between hardware, game mechanics, player desire, and designer vision" (p. 83).

*Computer Games and Technical Communication* also explores ethical and social issues affecting technical communication in the gaming industry, including an essay investigating the rhetorical consequences of online documentation that provides user help for games with unethical, immoral content. While the book only touches on the connection between technical communication and game studies, providing a single essay on the topic, the featured essay indicates a continuing concern over negative representation over nonheterosexual orientations in games and suggests that technical communicators intervene in the game development stage to mitigate these negative portrayals. The book concludes by moving from technical communication's role in the gaming industry to gaming's function in the technical communication classroom with compelling theoretical and primary research articles addressing the use of computer games as pedagogical tools to foster layered literacies and to promote professional writing practices.

Although the section headings do not necessarily reflect the essay topics within them and the final essay employs a less-than-scholarly tone, these lapses do not deter from the overall quality of information provided in the anthology. Internal references to other included

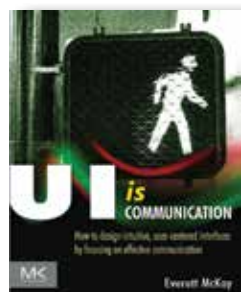
articles tie the essays into a cohesive collection. *Computer Games and Technical Communication: Critical Methods & Applications at the Intersection* successfully fills the gap in the academic scholarship while also offering practitioners suggestions to tap into this booming market.

### Valerie Mullaley

Valerie Mullaley is a practicing attorney in Huntsville, AL. She formerly worked as a technical writer and contracts manager with a local defense contractor. Valerie holds a BS in mathematics and a JD cum laude. She is pursuing a master's degree in English at the University of Alabama in Huntsville.

## UI is Communication: How to Design Intuitive, User-Centered Interfaces by Focusing on Effective Communication

Everett N. McKay. 2013. Waltham, MA: Morgan Kaufmann. [ISBN 978-0-12-396980-4. 364 pages, including index. US\$44.95 (softcover).]



The main strength of *UI is Communication: How to design intuitive, user-centered interfaces by focusing on effective communication* is its assertion that “a user interface is essentially a conversation between users and a product to perform tasks that achieve users’ goals” (p. 3).

Everett McKay expands this claim into 10 “top principles” for designing user interfaces (pp. 8–9), principles that fall under the rubric of what he calls “communication-driven design” (p. 243). Throughout the book, McKay presents these principles as a framework for all elements of the design process, from visual design to writing and communication to the shape of the design process itself.

Reading this book not only gives you a working knowledge of the importance of user interfaces in communication, but also how to design truly effective UIs. As McKay emphasizes, the main impetus for a book that focuses on both design and communication is that design processes neglect communication. He describes UIs as having their own “language,” complete with their own conventions, internal logic, and forms of emotional appeals (pp. 13–21). The best UIs respond to users like

a conversational partner by providing clear, intuitive, understandable feedback.

Drawing on a variety of examples, which range from visual elements of word processors to gesture-driven interactions on mobile devices, McKay explores the common UI design pitfalls and how to avoid them. “Users rarely perform complex tasks perfectly on the first try,” he explains, “yet complex tasks are usually designed with that ideal task flow” (p. 198). Rather than design interfaces that expect users to behave like robots, McKay advocates designing for the “emotional, impatient, error-prone human at the other end of the interaction” (p. 197). To help readers make this cognitive shift, McKay also provides a variety of exercises, making this an ideal book for use with students.

Overall, McKay has broken the interfaces we engage with on a daily basis into basic, understandable elements that apply to a broad array of contexts. Each element represents both a discrete aspect of UI, as well as an aspect of human communication. In this way, *UI is Communication* transcends its specific topic by providing implications for any professional who wants to understand better how to communicate effectively with other human beings. With clarity, levity, and a kind, educational tone, McKay instructs readers in the most important considerations for designing great UIs. Perhaps more importantly, however, he also contributes to the ongoing conversation on what constitutes effective professional communication.

### Guiseppe Getto

Guiseppe Getto is a college professor based in North Carolina who does freelance writing, UX consulting, digital marketing, and custom WordPress websites. Visit him online at <http://guiseppegetto.com>.

## True Alignment: Linking Company Culture with Customer Needs for Extraordinary Results

Edgar Papke. 2014. New York, NY: Amacom. [ISBN 978-0-8144-3336-7. 224 pages, including index. US\$29.95.]



Read this book if you want to find out why bacon and eggs is America's breakfast and why that matters. *True Alignment: Linking Company Culture with Customer Needs for Extraordinary Results* is the result of Papke translating his business consulting and coaching practice into a written guide that includes a systematic

approach to leveraging organizational culture for successful customer engagement. You will find plenty of examples from both small and large companies with whom Papke has worked and a model to apply within your own organization.

Influenced by seminal authors in the field of organizational culture such as Edgar Schein, Warren Bennis, Peter Drucker, and Peter Senge, Papke builds upon that deep knowledge base through use of a model he calls The Business Code™. Papke thoroughly discusses elements contained within the Code—customer, culture, intention, and leadership—while linking them to organizational culture. According to Papke, it is alignment of an organization's culture to these elements that fosters a high level of customer success.

Using a recipe analogy to explain the key linkages between culture and customer success, Papke guides the reader through his model. What seems to be lacking, however, is the order in which the ingredients are put together to ensure success. While he provides many examples about other accomplished organizations, the reader may still be unclear about how to apply the book's principles to his or her own organization. How ingredients are put together depends on you and your company. Gleaning additional information from the visual content of *True Alignment* will be a non-starter as the graphics are basic and elementary. They belie the work's complexity that must be done to truly align the customer and culture elements that comprise Papke's Code.

Read the book, but then plan to hire Papke to help you apply the model to your organization.

### Liz Herman

Liz Herman, PhD, PMP, is a communications leader with demonstrated achievements delivering superior knowledge management solutions. She is a senior member of STC and is active in STC's Washington DC Chapter. She currently works for Battelle in its Health and Analytics business unit.

## Writing for Science Journals: Tips, Tricks, and a Learning Plan

Geoffrey Hart. 2014. Point-Clare, Canada: Diaskeuasis Publishing. [ISBN 978-1-927972-01-4 (pbk.), ISBN 978-1-927972-02-1 (epub), ISBN 978-1-927972-03-08 (PDF). US\$32.00 (softcover), US\$26.00 (epub with PDF).]



Your career as a working scientist depends on publication in peer-reviewed journals. Doing so shares your knowledge, establishes your reputation, and creates employment and networking opportunities.

Unfortunately, planning, writing, and shepherding a manuscript through peer review to successful publication is a complex process that requires specialized knowledge and skills, not just writing and mechanics, but social. Most journals receive more manuscripts than they can possibly publish, and many things besides the quality of your research—submission and formatting errors, infelicitous communication with editors and reviewers—can trip you up. In addition, with the advent of open- and online-publication and the globalization of science, the entire field of scientific publishing is rapidly changing.

Just as you could use guidance for your research, you could use guidance for negotiating the submission process. In *Writing for Science Journals: Tips, Tricks, and a Learning Plan*, Geoffrey Hart has produced a guide packed with good advice and insider knowledge on every aspect of the process from initial planning to final review, revision, and acceptance.

To do so, he draws on more than 25 years' experience both as a science editor and as a research submitter. He has worked with thousands of manuscripts, and has served on the editorial board of STC's *Technical Communication* journal.

He reveals what you need to know, including many tricks and unspoken secrets that “everyone takes for granted and therefore forgets to pass on to their younger colleagues or graduate students” (p. 3).

Hart leads off with preliminary material on research design, ethics, and journal selection. He thoroughly discusses the structure of journal manuscripts, gives detailed advice on the handling of each section, discusses the choices to be made, and warns of the many pitfalls that could lead to rejection.

With an eye toward the needs of a global audience, he discusses writing style, unusual aspects of English, and provides a glossary of terms that are likely to cause problems for translators and non-native speakers of English.

Moving beyond writing, Hart tells what to expect during the peer review process, gives advice on how to respond to comments, and provides a valuable inside look at the complex etiquette involved in the relationships between submitters, peer reviewers, and editors.

Because few manuscripts have space to fully explore the research, Hart discusses augmenting your report with online supplemental material.

*Writing for Science Journals* contains a list of useful software, a bibliography, is extensively indexed, and provides links to all mentioned software and Web pages and to updates and errata available on the author's Web site.

Whether you are an old hand or a new researcher contemplating your first submission, here's a chance to benefit from a wealth of Hart's hard-won experience. Give it a look. Your career may depend on it.

### Patrick Lufkin

Patrick Lufkin is an STC Associate Fellow with experience in computer documentation, newsletter production, and public relations. He reads widely in science, history, and current affairs, as well as on writing and editing. He chairs the Gordon Scholarship for technical communication and co-chairs the Northern California technical communication competition.

## Refusals in Instructional Contexts and Beyond

Otilia Marti-Arnándiz and Patricia Salazar-Campillo, eds. 2013. Amsterdam, The Netherlands: Rodopi B.V. [ISBN 978-90-420-3715-1. 256 pages. US\$74.25 (softcover).]



When theorists analyze communication, they look for patterns that explain why the communication fails or succeeds. Speech act is one popular theory. It looks at that part of the communication by a speaker or writer that requires a reaction from the intended receiver. When that

receiver does not respond positively to the request, the communication is essentially over unless the originator modifies it and tries again. The crux of the matter is, “Refusals are inherently face-threatening acts and require a high level of pragmatic competence so as not to risk the interlocutor's face” (p. 1).

The manner in which the refuser replies is especially significant in cross-cultural communication. How do non-native speakers refuse the request politely and in such a manner so as to “save the [requester's] face”? Marti-Arnándiz and Salazar-Campillo's edited collection of essays, *Refusals in Instructional Contexts and Beyond*, examines how non-native English speakers are taught to respond appropriately.

The 10 essays are divided into three parts. In Part I (4 essays) the authors describe refusals in television episodes and a virtual world as they apply to non-native speaking students. They analyze these situations, then model other situations. Part II (3) looks at refusals in second language situations, especially in second language Spanish. Part III (3) focuses on how refusals are produced and the effect of researching on students' refusals.

The students involved in the research projects are all Spanish-speaking and have varying levels of proficiency in English from classroom studying to study-abroad.

The essays describe how teachers can help students understand refusals in English. They address how foreign language teachers help their students to understand how to refuse a request without seeming rude or impolite. One approach is to use TV episodes where there are refusals and analyze them based on speech-act theory. Another approach is through virtual world games.

Each essay reports on an empirical experiment run to test hypotheses related to the best methods for teaching refusals, so each essay is full of statistical tables and graphs. For someone who is teaching English as a foreign language, these essays should prove helpful in planning that part of the instruction.

The collection could be of little or no interest to professional technical communicators unless they are involved in some form of cross-cultural communication. For example, when analyzing why a particular communication fails, knowing how non-native speakers are trained could lead to effective revisions.

Therefore, the value of this collection lies in user analysis for professional technical communicators. Those who use user responses in cross-cultural communication can begin to understand the source and method of user refusals (treating the communication as a speech act). They can then adjust the communication to gain acceptance.

**Tom Warren**

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he serves as guest professor at the University of Paderborn, Germany.

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Lyn Gattis, Editor

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## Communication

### **Communicating food safety via the social media: The role of knowledge and emotions on risk perception and prevention**

Mou, Y., & Lin, C. A. (2014). *Science Communication*, 36, 593–616. doi: 10.1177/1075547014549480

“This study examined the Chinese public’s use of Weibo (a microblog platform) and their cognitive, affective, and behavioral responses to a series of food safety crises. Based on a sample of 1,360 adult Weibo users across China, the study found that Weibo use contributed to cognitive and behavioral responses to food safety concerns, but access to other online and off-line news and information outlets was largely irrelevant. Emotional response toward the food safety incidents was a stronger predictor of both food safety risk perception and prevention action, relative to food safety incident awareness and factual awareness. Theoretical and social implications of study findings are discussed.”

Edward A. Malone

### **Leveraging social networks for strategic success**

Eisenberg, E., Johnson, Z., & Pieterse, W. (2015). *International Journal of Business Communication*, 52, 143–154. doi: 10.1177/2329488414560283

“Increasingly unpredictable and competitive organizational environments have put pressure on leaders across all industries to better manage change. Key to successful change management is the ability

to both: (1) communicate the desired change in ways that create line of sight; and (2) develop regular sources of feedback that measure the extent to which the change has diffused throughout the organization. Social Network Analysis provides this type of useful feedback. By allowing leaders to visualize the informal communication networks in their organizations, social network analysis can help organizations continuously assess and evaluate the effectiveness of their change strategies. Social Network Analysis is gaining in popularity today due to the convergence of interest in performance dashboards and in social media. Organizations investing in social network analysis are doing so now because it helps them to identify individuals who are critical to the organization’s communication flow as well as opportunities for strategic communication aimed at tuning the network to better promote organizational effectiveness.”

Katherine Wertz

### **On the dark side of strategic communication**

Dulek, R., & Campbell, K. (2015). *International Journal of Business Communication*, 52, 122–142. doi: 10.1177/2329488414560107

“Although clarity holds a privileged place within the field of business/management/corporate communication, adopting a strategic perspective suggests that ambiguity, and even deception, may be appropriate choices, depending on strategic intent. This article builds a framework for analyzing the dark side of strategic communication from both a strategic perspective and a linguistic perspective and then applies it to four business scenarios involving corporate finance; three involve public pronouncements from executives about future stock offerings, while the

fourth involves a private statement made by a CEO to an important client and reported to the authors in an interview. The analysis of these scenarios leads the authors to propose that the intentional use of strategic ambiguity occurs along a continuum better represented by multiple shades of gray than a single hue of black.”

Katherine Wertz

### **Rhetorical functions of hashtag forms across social media applications**

Daer, A. R., Hoffman, R. F., & Goodman, S. (2014). *Communication Design Quarterly Review*, 3, 12–16. doi: 10.1145/2721882.2721884

“This study examines an ethnographically-collected set of social media posts from 5 applications in order to understand the rhetorical functions of something [the authors] call ‘metacommunicative’ hashtags (e.g., #PackersGottaWinThisOne, #thisweddingisawesome). Through a process of inductive analysis, [the authors] identified recurring genre functions that are both context-specific to applications’ ecologies and, at the same time, ‘stabilized enough’ (Schryer, 1993, p. 204) to warrant the use of rhetorical genre theory as a tool for understanding their communicative purposes.”

Lyn Gattis

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## Design

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### **The CV as a multimodal text**

Lipovsk, C. (2014). *Visual Communication*, 13, 429–458. doi: 10.1177/1470357213497869

“This article aims to broaden our understanding of CV visual design from a critical perspective, using the visual grammar developed by Kress and van Leeuwen as a point of departure. Drawing on an analysis of a set of CVs collected in France, the article highlights the significant role played by visual semiotics in applicants’ construals of professional expertise in their CVs as part of their endeavour to be shortlisted for an interview. It also identifies significant features across the interpersonal, ideational and textual metafunctions of the CVs. The analysis of the CVs

is complemented by the recruiter’s comments on the CVs, which further highlight the role of visual features in recruiters’ impressions of job applicants.”

Edward A. Malone

### **Putting environmental infographics center stage: The role of visuals at the Elaboration Likelihood Model’s critical point of persuasion**

Lazard, A., & Atkinson, L. (2014). *Science Communication*, 37, 6–33. doi: 10.1177/1075547014555997

“Infographics, which integrate visuals and text, can increase audience engagement with message content. Relying on two experiments, this study demonstrates the role of visuals for decisions to critically evaluate pro-environmental messages. Using the Elaboration Likelihood Model as a theoretical foundation, [the authors] demonstrate that individuals engage in greater levels of issue-relevant thinking when shown infographics compared to messages that rely just on text or just on illustration, with learning preferences and visual literacy as moderators. The findings demonstrate that visual content is an important factor for persuasive message processing, and infographic messages hold opportunities for the communication of environmental issues.”

Edward A. Malone

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## Education

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### **Cities of tomorrow: A synthesis of virtual and physical communities**

Tillander, M. (2014). *Visual Arts Research*, 40, 34–43. [doi: none]

“Designing educational experiences requires an understanding of the new dynamics being brought on by ubiquitous computing and learning made possible through emergent digital technologies. This essay employs a vision of the contemporary city as a framework in understanding the technical and social aspects of art education in an age of digital visual information. . . . The essay illuminates the

argument that technology-mediated communication has transformed our notion of the relation between place and community, and moves beyond discussions of ‘technology as a tool’ to focus on the relational combination of technology, communities, institutions, and societies. In this view, co-location is enacted and represented differently in actual and virtual spaces, each of which uniquely shapes educational interactions.”

**Edward A. Malone**

### ***Integrating online informative videos into technical communication service courses***

Mogull, S. A. (2014). *IEEE Transactions on Professional Communication*, 57, 340–363. doi: 10.1109/TPC.2014.2373931

“Online, informative videos are a popular genre of technical communication but little information is available for instructors to integrate the genre into technical communication courses.” This study examines “the logistics, considerations, and problems encountered when assigning authentic informative videos in introductory technical writing service courses . . . [and asks whether] an authentic informative video project in introductory technical writing service courses [is] an effective learning assignment from the students’ perspectives. . . . In this experience report, [the author] took a teacher-researcher role and triangulated . . . personal observations with a student-perception questionnaire and other student reflections on the assignment. . . . The informative video project was used in a junior-level, introductory technical communication service course. The informative video assignment was an experiential learning assignment in which students worked in small teams to develop ‘real-world’ communications for a peer audience. The learning objectives emphasized in the project include genre analysis, audience analysis, scriptwriting, visual-verbal communication, video production and technology, and project management and teamwork. . . . [S]tudent feedback reveals that this assignment was particularly useful for teaching audience analysis, technology skills, verbal-visual synergy of communication channels, and teamwork. . . . Informative videos are a challenging project but offer a unique opportunity to examine audience analysis and teach verbal-visual parallelism. Furthermore, the equipment and

production software are no longer barriers to assigning the project in technical communication courses.”

**Lyn Gattis**

### ***Making sense of data in the changing landscape of visual art education***

Klein, S. R. (2014). *Visual Arts Research*, 40, 25–33. [doi: none]

“This essay explores how visual art educators can make sense of data, and how they might use open source tools to aggregate, contextualize, visualize and share data using processes such as content curation, mapping, and visualization. These processes are discussed relative to their integration within art education research and practices to support the development of participatory cultures and the advancement of leadership.”

**Edward A. Malone**

## **Health communication**

### ***Readability and visuals in medical research information forms for children and adolescents***

Grootens-Wiegers, P., De Vries, M. C., Vossen, T. E., & Van den Broek, J. M. (2015). *Science Communication*, 37, 89–117. doi: 10.1177/1075547014558942

“Children are often-overlooked receivers of medical information, and little research addresses their information needs. However, young children are capable of understanding medical concepts, and they express the desire to be informed. This study addresses the quality of medical research information forms for children in the Netherlands, by assessing text readability and the role of visuals. Children’s reading books, nonfiction books, and textbooks were used as comparison. Seven focus groups were conducted to identify children’s preferences and needs for text and supporting visuals. [The authors] argue that the use of visuals is a powerful, but neglected, tool to improve medical information for minors.”

**Edward A. Malone**



**Targeting the American market for medicines, ca. 1950s–1970s: ICI and Rhône-Poulenc compared**

Quirke, V. (2014). *Bulletin of the History of Medicine*, 88, 654–696. doi: 10.1353/bhm.2014.0075

“The forces that have shaped American medicine include a wide set of interrelated changes, among them the changing research, development, and marketing practices of the pharmaceutical industry. This article compares the research and development (R&D) and marketing strategies of the British group Imperial Chemical Industries (ICI, whose Pharmaceutical Division was spun off and merged with the Swedish company Astra to form AstraZeneca) and its French counterpart Rhône-Poulenc (now part of Sanofi-Aventis) in dealing with the American medical market. It examines how, in the process, the relationship between R&D and marketing was altered, and the firms themselves were transformed. The article also questions the extent to which their approaches to this market, one of the most significant markets for drugs in general, and for anticancer drugs in particular, became standardized in the period of ‘scientific marketing.’”

Edward A. Malone

**Testing map features designed to convey the uncertainty of cancer risk: Insights gained from assessing judgments of information adequacy and communication goals**

Severtson, D. J. (2015). *Science Communication*, 37, 59–88. doi: 10.1177/1075547014565908

“Barriers to communicating the uncertainty of environmental health risks include preferences for certain information and low numeracy. Map features designed to communicate the magnitude and uncertainty of estimated cancer risk from air pollution were tested among 826 participants to assess how map features influenced judgments of adequacy and the intended communication goals. An uncertain versus certain visual feature was judged as less adequate but met both communication goals and addressed numeracy barriers. Expressing relative risk using words communicated uncertainty and addressed numeracy barriers but was judged as

highly inadequate. Risk communication and visual cognition concepts were applied to explain findings.”

Edward A. Malone

**Three types of memory in emergency medical services communication**

Angeli, E. L. (2015). *Written Communication*, 32, 3–38. doi: 10.1177/0741088314556598

“This article examines memory and distributed cognition involved in the writing practices of emergency medical services (EMS) professionals. Results from a 16-month study indicate that EMS professionals rely on distributed cognition and three kinds of memory: individual, collaborative, and professional. Distributed cognition and the three types of memory reduce cognitive workload during a 911 response, and they help evoke information as an EMS professional composes the legally binding patient care report. In addition to presenting results, the article details the author’s interaction with two institutional review boards, which influenced the study’s methods. The article argues that scholars should conduct more research on the collaborative and distributed nature of memory as it relates to workplace writing practices. Furthermore, the article calls for developing writing research methods that involve participant recollection.”

Lyn Gattis

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## Information management

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**Component content management and quality of information products for global audiences: An integrative literature review**

Batova, T. (2014). *IEEE Transactions on Professional Communication*, 57, 325–339. doi: 10.1109/TPC.2014.2373911

“... A growing number of technical communication groups are adopting the strategies, standards, and technologies of component content management. This integrative literature review examines the impacts of component content management on the quality of



multilingual information products.” The study finds that “[t]wo divides characterize component content management and multilingual quality. The divide between the academy and industry is marked by different levels of interest in quality, particularly its practical aspects. . . . Therefore, a comprehensive picture of the impacts of component content management on multilingual quality requires combining the perspectives of scholarly and industry authors in technical communication and technical translation and localization.” Using Activity Theory, the author “systematically reviewed literature sources on component content management and multilingual quality in scholarly and trade sources in technical communication and technical translation and localization, then classified all selected publications by their relationships to the research questions, themes within them, and characteristics of the source. . . . [The author concludes that] [c]ontradictory conceptual understandings exist on the impacts of component content management on multilingual quality. . . . Although best practices offer some suggestions for overcoming these challenges, the suggestions do not resolve them sufficiently and do not reconcile the contradiction between consistency and adaptation of information products based on the different expectations of audiences around the globe. . . . Future research needs to be conducted collaboratively by stakeholders in academia and industry and from technical communication and technical translation and localization.”

Lyn Gattis

### ***The elusive promise of reuse***

White, L. (2015). *Best Practices*, 17, 1, 4–5. [Center for Information-Development Management] [doi: none]

This article examines three main challenges to teams who are working to implement content reuse. (1) Writing content for reuse involves organizing content consistently and adhering closely to standards, templates, and guidelines the documentation team has developed. (2) Finding content to reuse can be time-consuming initially but becomes easier with strategic use of metadata for tagging content, so that content searches can be targeted efficiently. (3) Communicating about reused content means talking regularly with other writers about possible effects of

changes to previously written content. The author emphasizes that “[c]ontent reuse is not for the faint of heart, but with a commitment to putting sufficient time into the planning and maintenance of reused content, documentation teams can see measurable time savings and enormous improvements in the accuracy and consistency of their deliverables.”

Lyn Gattis

### ***Writing for an audience of machines***

Steinmetz, D. (2014). *Best Practices*, 16, 148–155. [Center for Information-Development Management] [doi: none]

“. . . An increasing percentage of the audience for content is ‘machines,’ or more specifically, ever more sophisticated software playing an intermediary role between accepting requests for information and responding by processing the request and returning information. These tools play a content processing role between the available content and the human consumer of the content. Content processing involves more than the storage, distribution, and display of content; it involves backend analysis supported by huge databases, with impact on what you see, what job you get, and your revenue. . . . Natural-language processing helps make content consumption an approachable problem, but certain formats and characteristics can be a hindrance and reduce the effectiveness and confidence of question-answering systems. Current best practices for content authoring provide a good starting point, but differences do exist.” The author recommends that content developers “[t]ake these differences into account as you review your standards and templates, and then begin to implement the changes for new content to increase its usefulness and accuracy for this newest part of your reading audience.”

Lyn Gattis

## Instructions

### **Benefits of illustrations and videos for technical documentations**

Große, C. S., Jungmann, L., & Drechsler, R. (2015). *Computers in Human Behavior*, 45, 109–120. doi: 10.1016/j.chb.2014.11.095

“[An] experiment was conducted which compared three types of technical documentations—namely, ‘text only’ documentations, documentations with text and illustrations, and video versions—with respect to objective and subjective measures. The results indicate that whether a task is actually solved or not does not mainly depend on the type of documentation; however, working with documentations with text and illustrations significantly shortens solution times. Depending on the concrete problem, ‘text only’ documentations can elicit a considerably larger number of faulty steps. With respect to subjective measures, ‘text only’ documentations reach especially negative scores, whereas documentations with text and illustrations and video documentations reach comparable—and considerably better—subjective ratings. The results also show significant gender differences.”

Edward A. Malone

## Intercultural issues

### **Beyond authenticity: A visual-material analysis of locality in the global redesign of Starbucks stores**

Aiello, G., & Dickinson, G. (2014). *Visual Communication*, 13, 303–321. doi: 10.1177/1470357214530054

“In this article, the authors examine the global store design strategy launched by Starbucks in 2009 in the wake of the economic crisis, increasing brand dilution, and growing competition. They offer a visual-material analysis of the corporation’s efforts to create a global aesthetic grounded in locality, with an in-depth focus on meaning potentials of materiality and community found across the four store redesigns that were unveiled in Seattle, the coffee company’s hometown, and which

functioned as prototypes for store design across the United States, Europe and Asia. They then critically engage Starbucks’ rhetoric/discourse of locality in relation to the more widespread notion of authenticity and argue that, while authenticity is rooted in textual and symbolic arrangements, locality operates in the realm of emplaced and embodied claims of difference. Shifting from authenticity to locality in design and branding practices alters critical engagements and everyday relationships with global consumer capitalism, insofar as this may be increasingly entrenched with vernacular expressions of cosmopolitanism.”

Edward A. Malone

### **Factors that enable and challenge international engineering communication: A case study of a United States/British design team**

Hovde, M. R. (2014). *IEEE Transactions on Professional Communication*, 57, 242–265. doi: 10.1109/TPC.2014.2363893

“In recent years, many businesses have become involved in internationalized projects, yet understanding the dynamics of engineering communication in virtual dispersed teams is limited.” This study asked how “the factors mentioned in the literature function in an international engineering project . . . [and whether there are] factors that enhance or constrain the work in an engineering setting that are not mentioned in previous studies. . . . This study involved observing international engineer meetings in the US and the UK and interviewing 19 engineers leading an international design team. The participants worked for the same international company with about half from the US and half in Great Britain. . . . Many of the factors identified in general professional communication studies held true for this context. But some features were unique to an engineering environment that the literature had not previously mentioned, including planning for and working with intercultural dispersed virtual engineering teams and that people need to consider many complexities of culture that affect communication practices. Because this study observed one team in the context of only two cultures, future research may determine whether these factors are more widely found in other teams, workplaces, and cultures. Future research may also determine the relative levels

of influence of the contextual factors on international dispersed virtual engineering teams. In addition, the study of engineers learning to communicate in international settings may be illuminating.”

Lyn Gattis

### **Issues of language and competence in intercultural business contexts**

Nair-Venugopala, S. (2015). *Language and Intercultural Communication*, 15, 29–45. doi: 10.1080/14708477.2014.985304

“This paper explores some of the tension between language ability as a type of workplace competence and standardized language use in Malaysian business contexts, which are set against the backdrop of the globalized workplace. Standardized English language use is prioritized as a value-added skill, over contextualized or localized language use as authentic language ability, in these contexts which are natural sites of intercultural communication in multilingual, multiethnic Malaysia. It is contended that standardized English may not be able to compete with the authenticity of contextualized or localized language use for it is the latter that ensures that the work of the localized workplace gets done first before it can lay claim to the globalized economy. The tension between such authentic language use as innate ability and prescribed language use as skills can impinge on intercultural communication competence (ICC).”

Edward A. Malone

### **A strange familiarity? Place perceptions among the globally mobile**

Nielsen, H. P., & Faber, S. T. (2014). *Visual Communication*, 13, 373–388. doi: 10.1177/1470357214530053

“How do globally mobile people perceive and make sense of a new place in which they have to create an everyday life for themselves? And how may their place perception be communicated through photographs? These are the questions around which this article revolves. The visual material discussed in the article stems from a participatory research project, in which North Denmark functions as a setting for studying local particularities and global convergences. Analysing part of this material, the article explores the perception of—and affiliation with—places

and localities, pointing to how perceptions of strangeness and familiarity occur along unexpected lines of difference and similarity depending on the embodied positionality of the involved participants.”

Edward A. Malone

## **Professional issues**

### **Modern book publishing: Web sites for the trade**

Rodzvilla, J. (2015). *Journal of Scholarly Publishing*, 46, 158–174. doi: 10.3138/jsp.46.2.03

“Handheld computers and online services have democratized the ability to publish and distribute texts. Although today’s authors do not need to work with a publisher who will edit, design, print, and distribute their books, the traditional model of publishing does provide an established means to reach an audience, as well as a rich repertoire of best practices, many of which can now be found online at trade organizations’ Web sites. As new technology continues to create new paths from author to reader, it also helps to improve the jobs of professionals by putting resources like the Chicago Manual of Style and Books in Print online. This article provides information about the online resources available for editorial, production, and sales professionals in the book industry and includes key news sites pertaining to the industry.”

Edward A. Malone

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## Research

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### **Where did we come from and where are we going? Examining authorship characteristics in technical communication research**

Lam, C. (2014). *IEEE Transactions on Professional Communication*, 57, 266–285. doi: 10.1109/TPC.2014.2363892

“This study explores the characteristics of authors who have published in technical communication journals between 2008 and 2012 to generate insights into who is actively contributing to scholarship in the field. . . . A data set of 674 authors who have published in the *IEEE Transactions on Professional Communication* (TPC), *Technical Communication Quarterly*, and *Journal of Business and Technical Communication* (JBTC), between 2008 and 2012 was coded for current department, Ph.D. department, department with a technical communication degree program, research method, and collaboratively authored articles. Data were analyzed using contingency table analysis and correspondence analysis. . . . Authors from English departments constitute nearly 30% of the sample; authors from information systems and technology departments and management, business, and economics departments made up more than 20% of the total sample. A little over 20% of the sample received a Ph.D. degree in technical communication. Authors from information systems and technology departments and management, business, and economics departments are highly associated with TPC. Authors from English departments and writing departments were associated with TCQ and JBTC. TC is associated with authors from education departments and human-centered design departments. Authors from information systems and technology departments and management, business, and economics departments were associated with surveys and experiments. Authors from English departments were associated with case study and mixed methods research. Non-US authors and ones from engineering, computer science, linguistics, information systems and technology, and management, business, and economics departments were all highly associated with collaboratively authored articles. These results provide insights into which disciplines are most

influential and opportunities to consider the approaches and training of our diverse population of scholars in an effort to build a cohesive body of research. . . .”

Lyn Gattis

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## Scientific writing

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### **The visual invention practices of STEM researchers: An exploratory topology**

Walsh, L., & Ross, A. B. (2015). *Science Communication*, 37, 118–139. doi: 10.1177/1075547014566990

“This article presents results from a qualitative pilot survey of science, technology, engineering, and math (STEM) researchers concerning techniques used to create graphics for research articles. The survey aimed to induce a methodological vocabulary for a larger project designed to describe and improve STEM visual literacy for nonexperts. However, the survey also revealed interesting problems for investigation—chief among them a mismatch between STEM visual pedagogy and praxis. In addition, participants supplied a handlist of STEM visual communication texts that have informed their praxis. Survey results are presented in the form of a topology—a frequency-based representation of the topics framing participants’ discussion of STEM visual invention.”

Edward A. Malone

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## Technology

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### **The greatest missions never flown: Anticipatory discourse and the projectory in technological communities**

Messeri, L. R., & Vertesi, J. (2015). *Technology and Culture*, 56, 54–85. doi: 10.1353/tech.2015.0023

“This article introduces the concept of the sociotechnical projector to explore the importance of future-oriented discourse in technical practice. It examines the case of two flagship NASA missions that, since the

1960s, have been continually proposed and deferred. Despite the missions never being flown, it argues that they produced powerful effects within the planetary science community as assumed ‘end-points’ to which all current technological, scientific, and community efforts are directed. It asserts that attention to the social construction of technological systems requires historical attention to how actors situate themselves with respect to a shared narrative of the future.”

Edward A. Malone

### ***The virtual flier: The link trainer, flight simulation, and pilot identity***

Jeon, C. (2015). *Technology and Culture*, 56, 28–53. doi: 10.1353/tech.2015.0017

“The Link Trainer is often described as the first successful attempt at what we now recognize as flight simulation and even virtual reality. Instead of asking how well the device simulated flight conditions, this article shows that what the Link Trainer simulated was not the conditions of the air, but rather the conditions of the cockpit that was gradually filled with flight instruments. The article also considers the Link Trainer as a cultural space in which shifting ideas about what it meant to be a pilot were manifested. A pilot in the Link Trainer was trained into a new category of flier—the virtual flier—who was an avid reader of instruments and an attentive listener to signals. This article suggests that, by situating the pilot within new spaces, protocols, and relationships, technologies of simulation have constituted the identity of the modern pilot and other operators of machines.”

Edward A. Malone

## **Usability studies**

### ***Designing globally, working locally: Using personas to develop online communication products for international users***

Getto, G., & St.Amant, K. (2014). *Communication Design Quarterly Review*, 3, 24–46. doi: 10.1145/2721882.2721886

“Extending digital products and services to global markets requires a communication design approach that considers the needs of international (e.g. non-U.S.) users. The challenge becomes developing an approach that works effectively. The concept of personas, as applied in user experience design (UX), can offer an effective solution to this situation. This article examines how this idea of personas can expand communication design practices to include users from other cultures.”

Lyn Gattis

### ***Product review users’ perceptions of review quality: The role of credibility, informativeness, and readability***

Mackiewicz, J., & Yeats, D. (2014). *IEEE Transactions on Professional Communication*, 57, 309–342. doi: 10.1109/TPC.2014.2373891

“Gauging the quality of product reviews through helpfulness votes is problematic for a variety of reasons. [The authors] examine potential characteristics of review quality that span review credibility, informativeness, and readability to contribute to better ways of assessing review quality.” Using a survey distributed through SurveyMonkey Audience, the authors examined 829 participant responses to control and experimental versions of 11 product reviews, with product review quality measured on a five-point scale. The authors used Pearson’s chi square to analyze for significant differences in participants’ perceptions of quality. They found significant differences in statements concerning a reviewer’s prior experience with a similar product (credibility), research into the product (credibility), general recommendation about the product (informativeness), formatting with headings (readability), the extent to which the product met expectations (informativeness), and a specific



recommendation about the product (informativeness). “Using these results, companies can better locate quality reviews; reviewers can increase the quality and, therefore, salience of their reviews; and communication specialists can help reviewers write and revise reviews for improved quality. Future research on review quality could investigate other potential characteristics of credibility, informativeness, and readability.”

**Lyn Gattis**

***SUP-Q: A comprehensive measure of the quality of the website user experience***

Sauro, J. (2015). *Journal of Usability Studies*, 10, 68–86. [doi: none]

“A three part study conducted over five years involving 4,000 user responses to experiences with over 100 websites was analyzed to generate an eight-item questionnaire of website quality—the Standardized User Experience Percentile Rank Questionnaire (SUPR-Q). The SUPR-Q contains four factors: usability, trust, appearance, and loyalty. The factor structure was replicated across three studies with data collected both during usability tests and retrospectively in surveys. There was evidence of convergent validity with existing questionnaires, including the System Usability Scale (SUS). The overall average score was shown to have high internal consistency reliability ( $\alpha = .86$ ). An initial distribution of scores across the websites generated a database used to produce percentile ranks and make scores more meaningful to researchers and practitioners. The questionnaire can be used to generate reliable scores in benchmarking websites, and the normed scores can be used to understand how well a website scores relative to others in the database.”

**Ginnifer Mastarone**